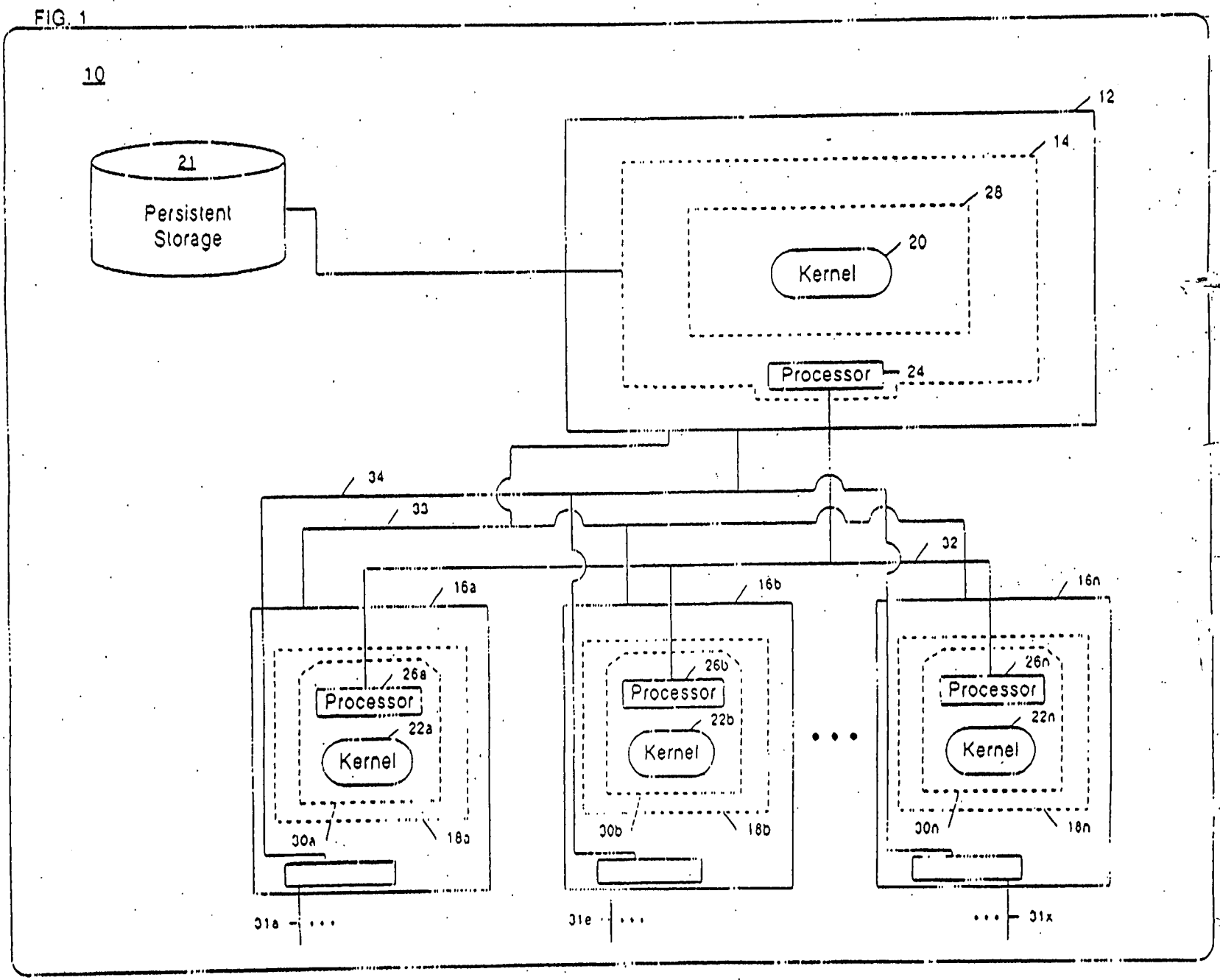
09/23/60 "Tue 09:60

FIG. 1



Best Available Copy

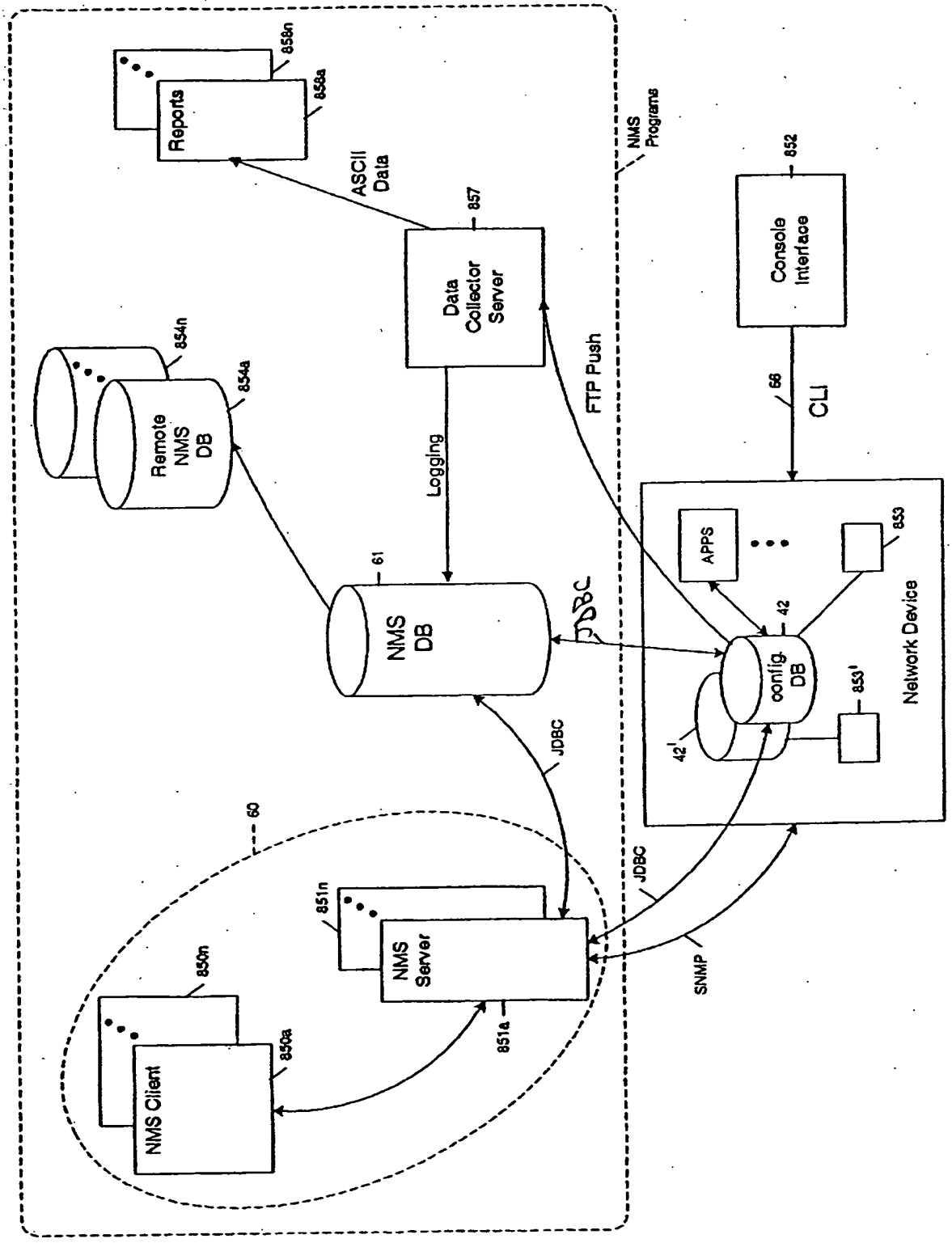

858n
858a
Reports
ASCII Data
857
Data Collector Server
NMS Programs
852
Console Interface
854n
854a
Remote NMS DB
Logging
FTP Push
56
CLI
61
NMS DB
JDBC
APPS
853
42
Config. DB
853'
42'
Network Device
JDBC
60
851n
NMS Server
850n
850a
NMS Client
851a
SNMP

Fig. 2a

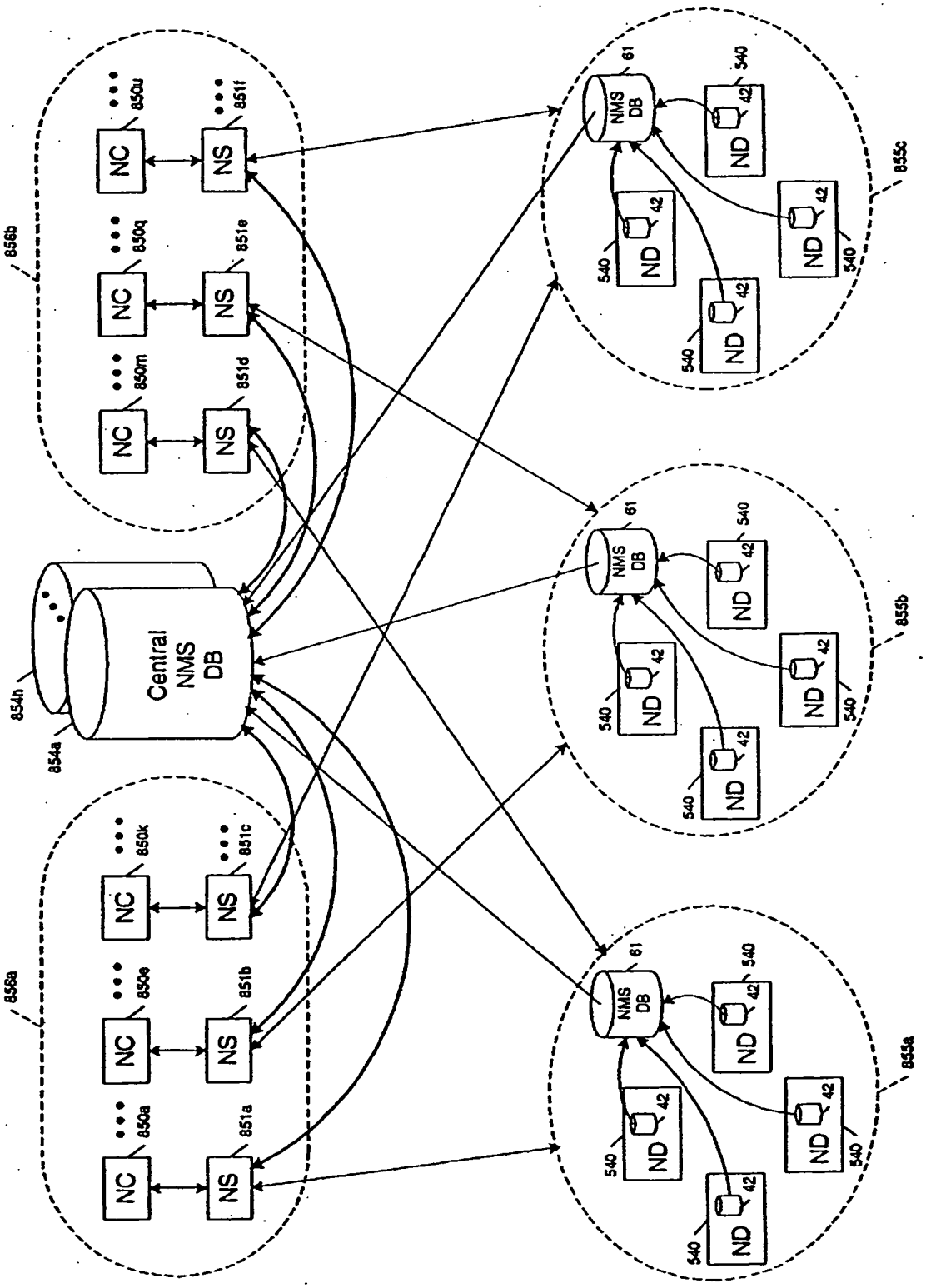

Central NMS DB
854n
854a
856b
856a
NC
NS
850u
850q
850m
850k
850e
850a
851f
851e
851d
851c
851b
851a
855c
855b
855a
NMS DB
61
ND
42
540

Fig. 2b

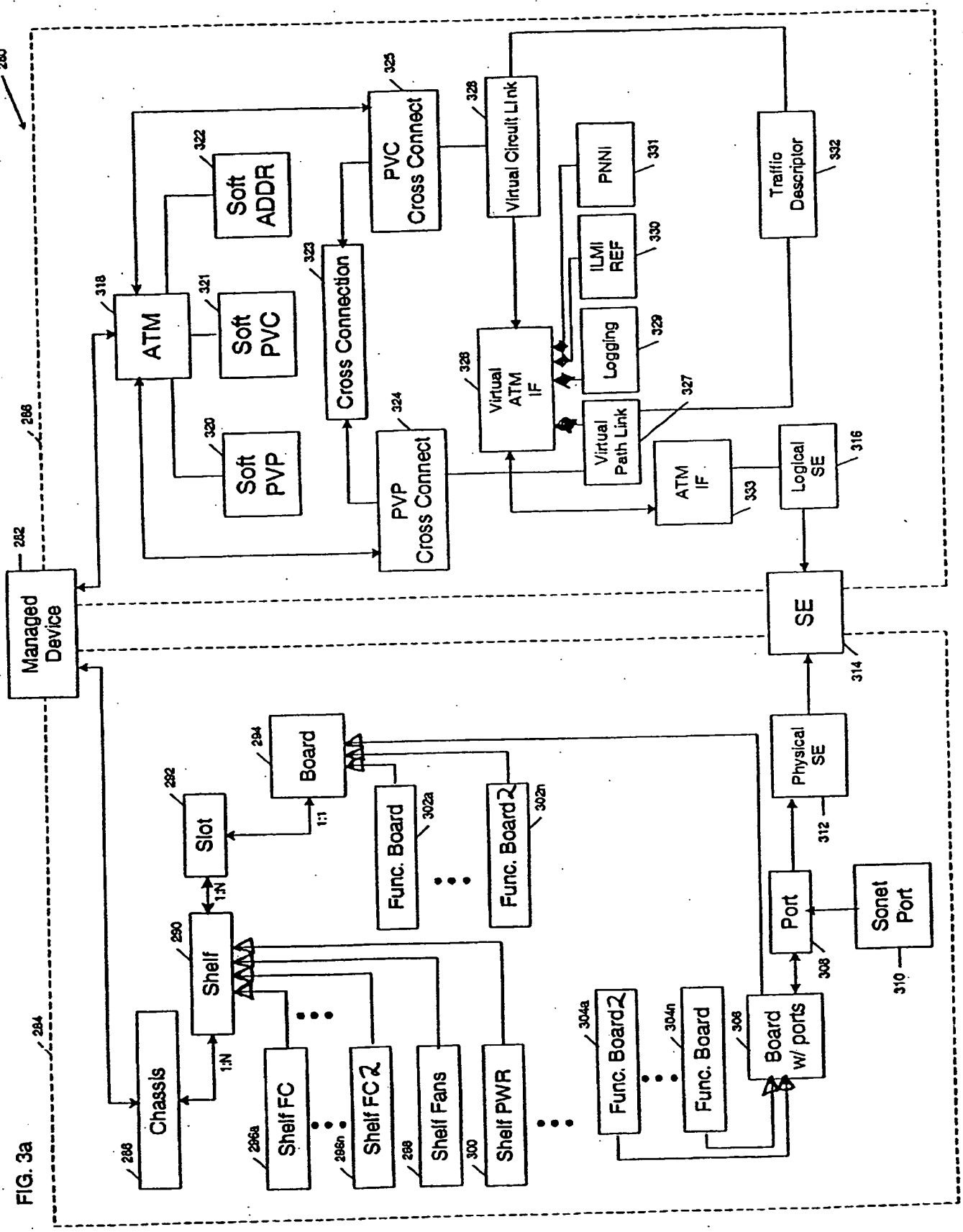

280
286
282
Managed Device
284
Chassis
288
Shelf
290
1:N
Slot
292
Board
294
1:1
Func. Board
302a
Func. Board 2
302n
Shelf FC
296a
Shelf FC 2
296n
Shelf Fans
298
Shelf PWR
300
Func. Board 2
304a
Func. Board
304n
Board w/ ports
306
Port
308
Sonet Port
310
Physical SE
312
SE
314
Logical SE
316
ATM
318
Soft PVC
321
Soft ADDR
322
Soft PVP
320
Cross Connection
323
PVC Cross Connect
325
PVP Cross Connect
324
Virtual Circuit Link
328
Virtual ATM IF
326
Virtual Path Link
327
ATM IF
333
PNNI
331
ILMI REF
330
Logging
329
Traffic Descriptor
332

FIG. 3a

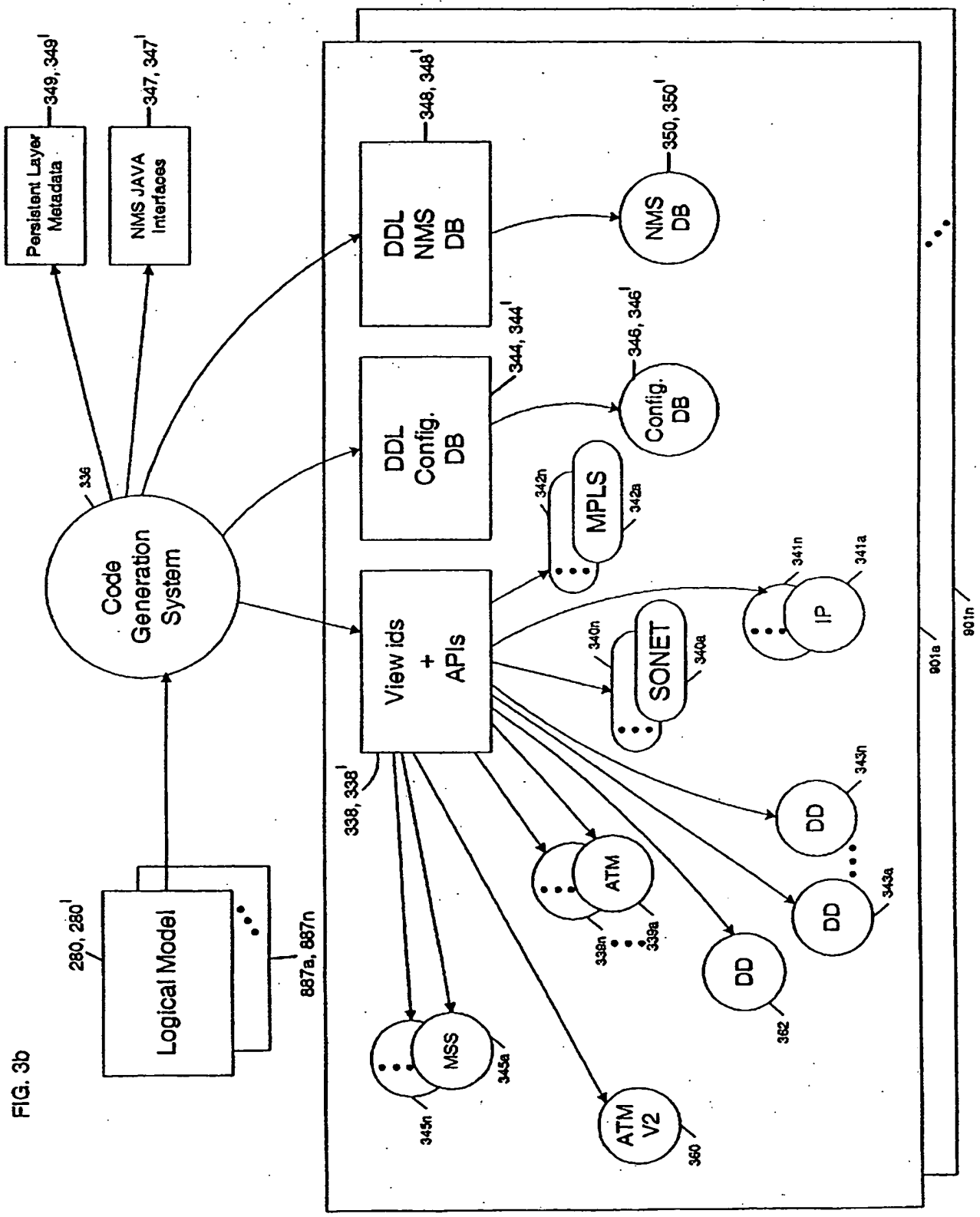

Persistent Layer Metadata
349, 349'
NMS JAVA Interfaces
347, 347'
336
Code Generation System
Logical Model
280, 280'
887a, 887n
DDL NMS DB
348, 348'
NMS DB
350, 350'
DDL Config. DB
344, 344'
Config. DB
346, 346'
View ids + APIs
338, 338'
MPLS
342n
342a
SONET
340n
340a
IP
341n
341a
ATM
338n
338a
DD
343n
DD
343a
DD
362
MSS
345n
345a
ATM V2
360
901a
901n

FIG. 3b

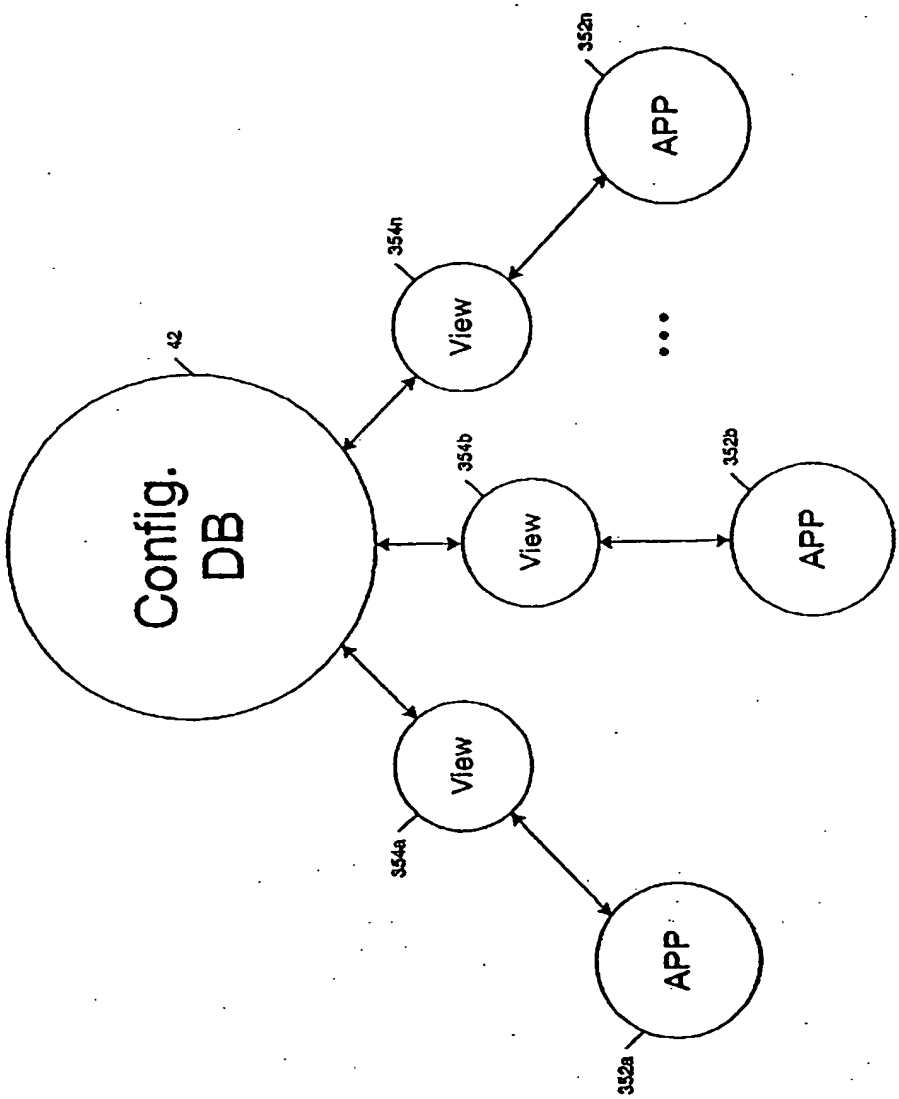
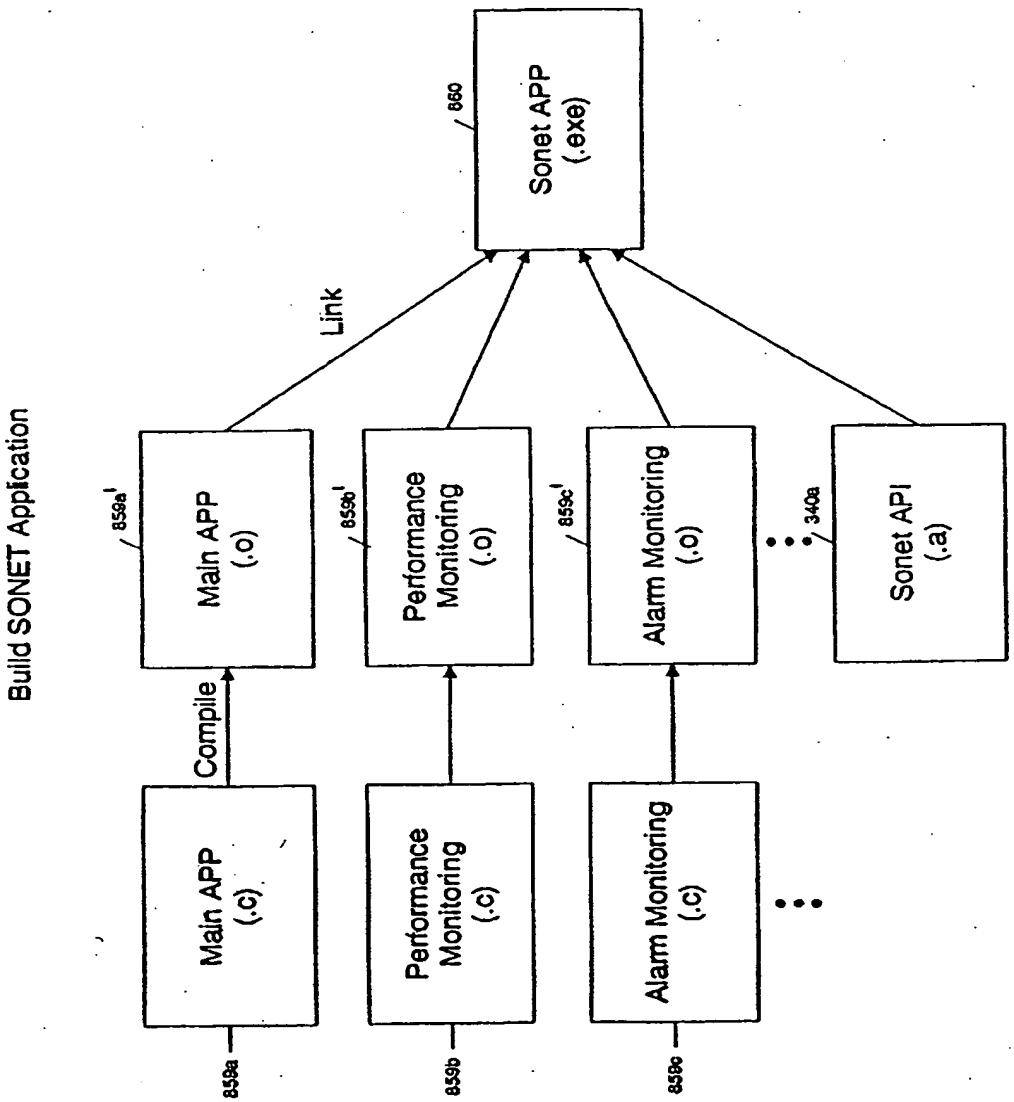

Config. DB
42
View
354n
APP
352n
View
354b
APP
352b
View
354a
APP
352a

FIG. 3c

Fig. 3d


Build SONET Application
Main APP (.o)
Performance Monitoring (.o)
Alarm Monitoring (.o)
Sonet API (.a)
Compile
Link
Sonet APP (.exe)
Main APP (.c)
Performance Monitoring (.c)
Alarm Monitoring (.c)
859a'
859b'
859c'
340a
850
859a
859b
859c

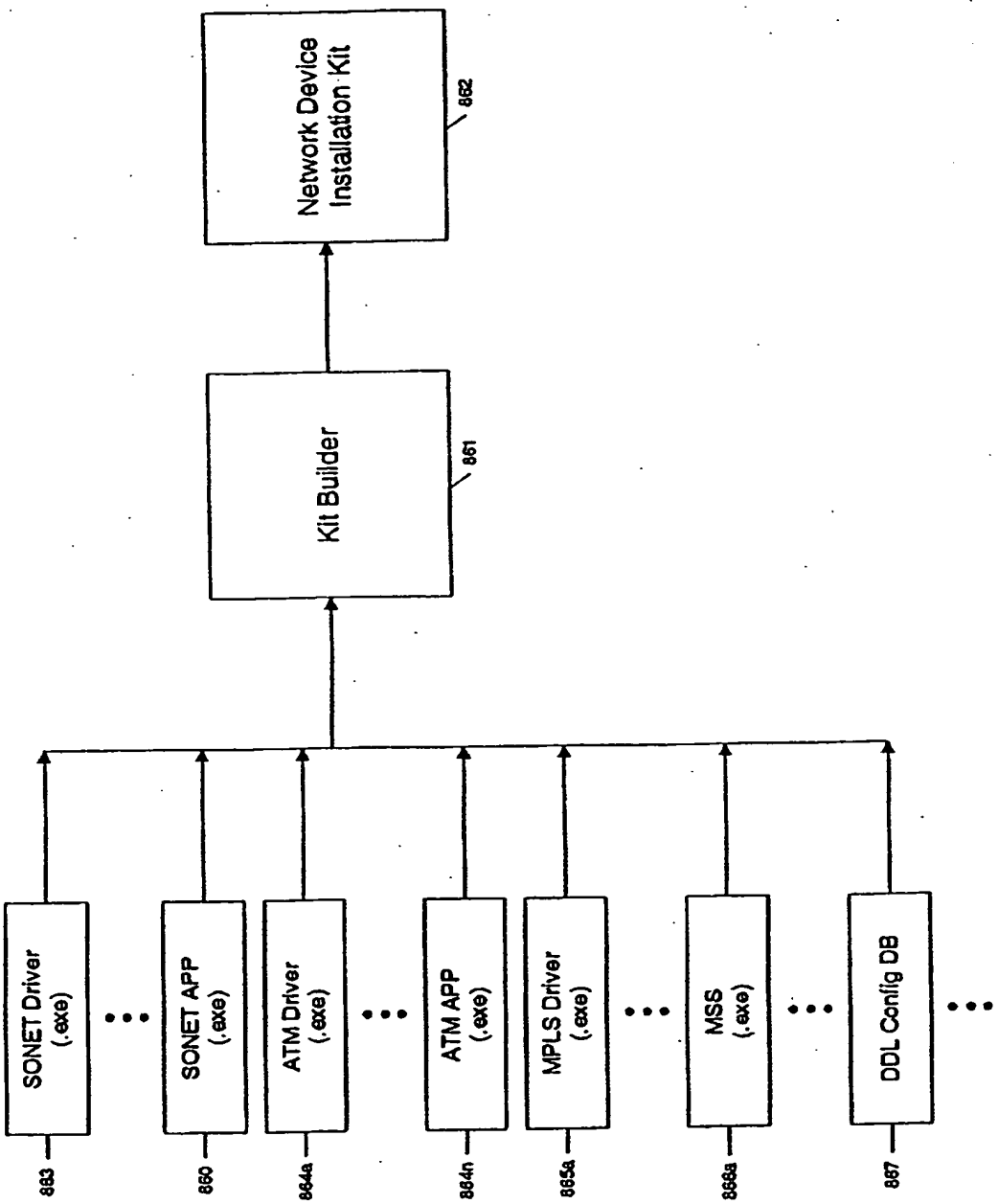

Network Device Installation Kit
862
Kit Builder
861
SONET Driver (.exe)
863
SONET APP (.exe)
860
ATM Driver (.exe)
864a
ATM APP (.exe)
864n
MPLS Driver (.exe)
865a
MSS (.exe)
866a
DDL Config DB
867

Fig. 3e

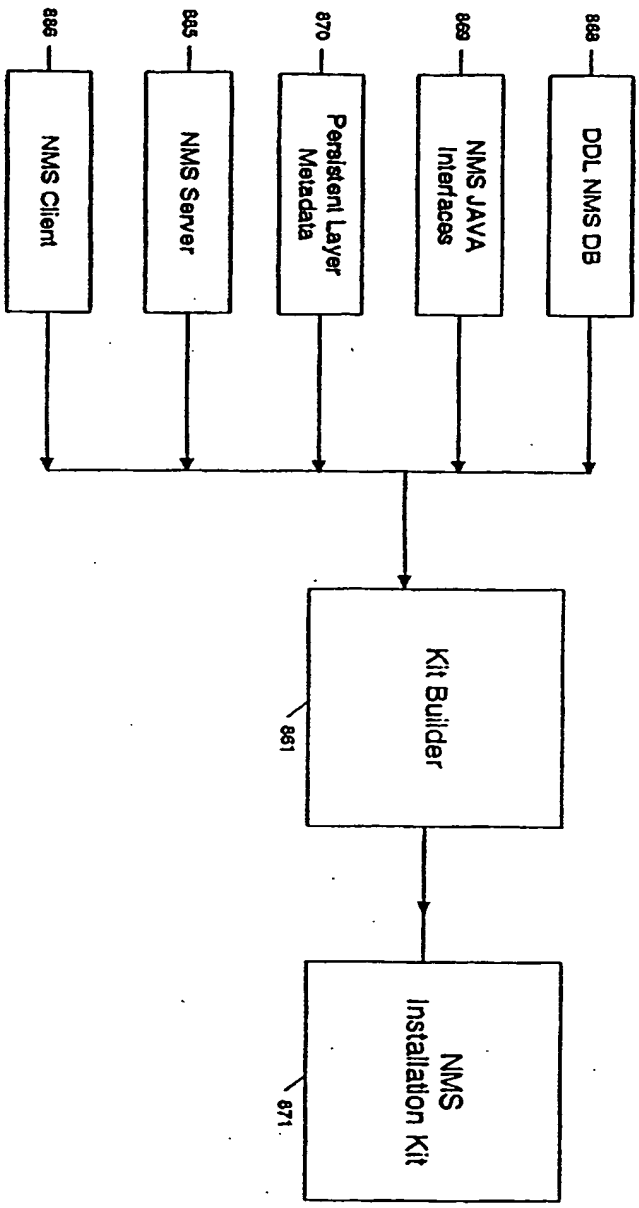
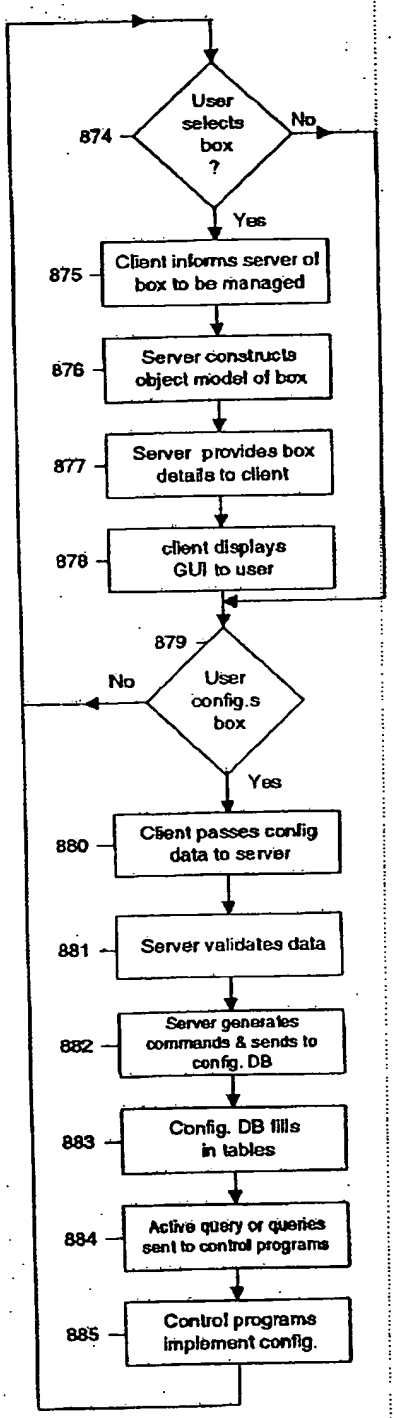

886
885
870
869
868
NMS Client
NMS Server
Persistent Layer Metadata
NMS JAVA Interfaces
DDL NMS DB
Kit Builder
861
NMS Installation Kit
871

Fig. 3F

Fig. 3g


User selects box ?
874
No
Yes
Client informs server of box to be managed
875
Server constructs object model of box
876
Server provides box details to client
877
client displays GUI to user
878
879
User config.s box
No
Yes
Client passes config data to server
880
Server validates data
881
Server generates commands & sends to config. DB
882
Config. DB fills in tables
883
Active query or queries sent to control programs
884
Control programs implement config.
885

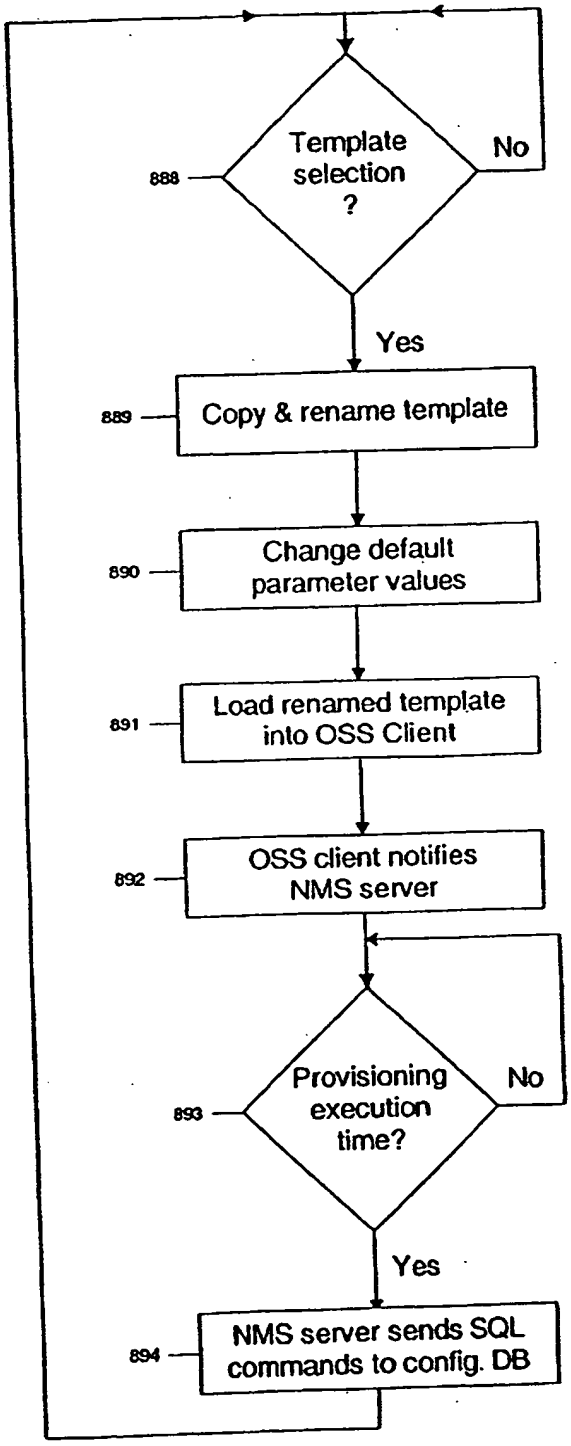


Fig. 3h

Sent By: Equipe Communications; 781 795 2031; Jul-21-00 2:44PM; Page 11

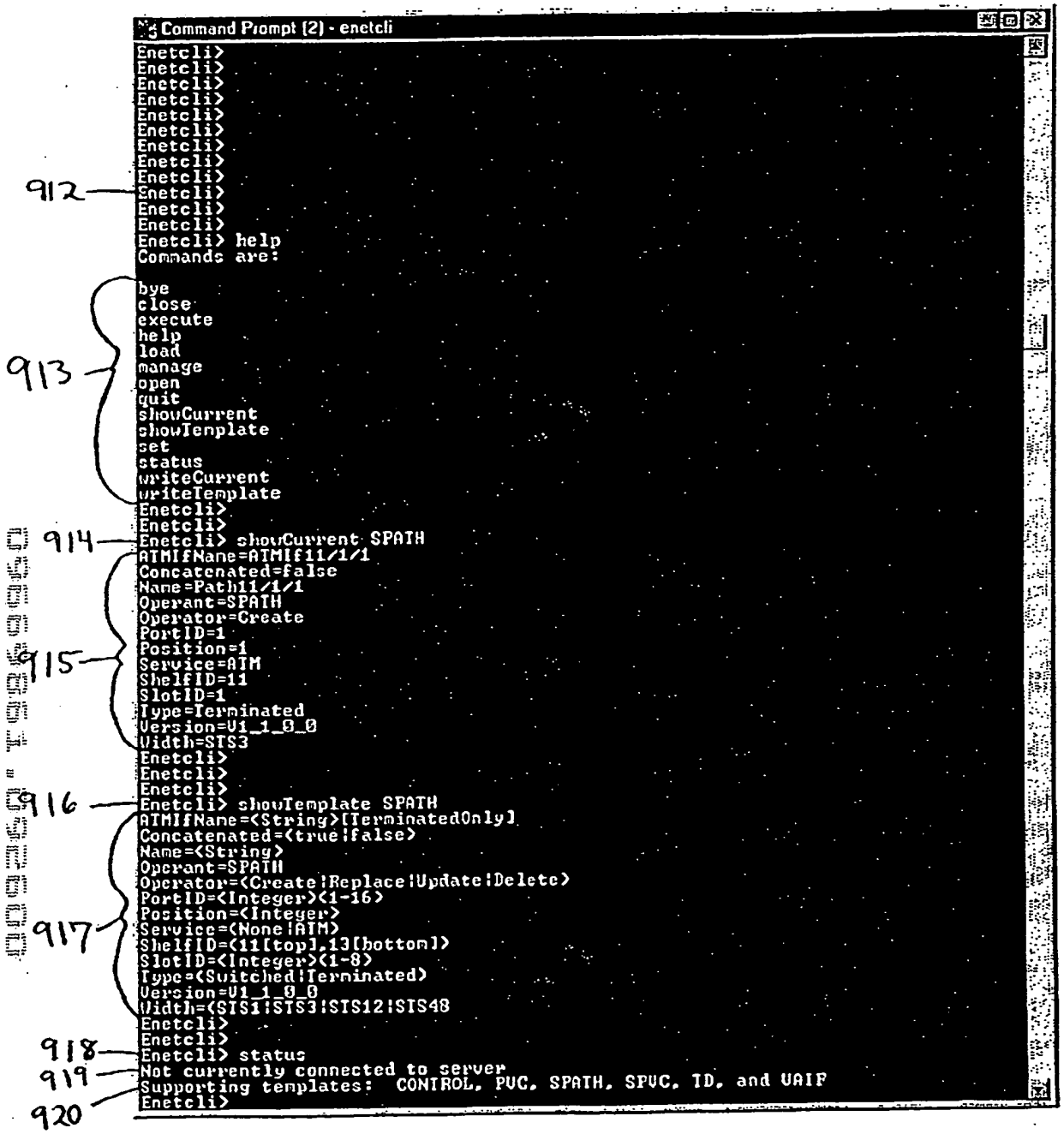

Command Prompt (2) - enetcli
Enetcli>
Enetcli> help
Commands are:
bye
close
execute
help
load
manage
open
quit
showCurrent
showTemplate
set
status
writeCurrent
writeTemplate
Enetcli> showCurrent SPATH
ATMIfName=ATMIf11/1/1
Concatenated=false
Name=Path11/1/1
Operant=SPATH
Operator=Create
PortID=1
Position=1
Service=ATM
ShelfID=11
SlotID=1
Type=Terminated
Version=V1_1_0_0
Width=STS3
Enetcli> showTemplate SPATH
ATMIfName=<String>[TerminatedOnly]
Concatenated=<true|false>
Name=<String>
Operant=SPATH
Operator=<Create|Replace|Update|Delete>
PortID=<Integer><1-16>
Position=<Integer>
Service=<None|ATM>
ShelfID=<11[top],13[bottom]>
SlotID=<Integer><1-8>
Type=<Switched|Terminated>
Version=V1_1_0_0
Width=<STS1|STS3|STS12|STS48
Enetcli> status
Not currently connected to server
Supporting templates: CONTROL, PVC, SPATH, SPVC, ID, and UAIF
Enetcli>
912
913
914
915
916
917
918
919
920

Fig. 3i

Fig. 3j

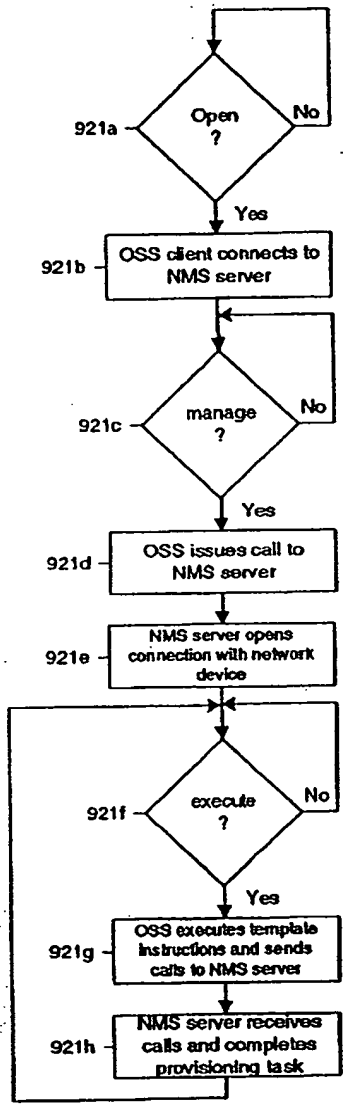
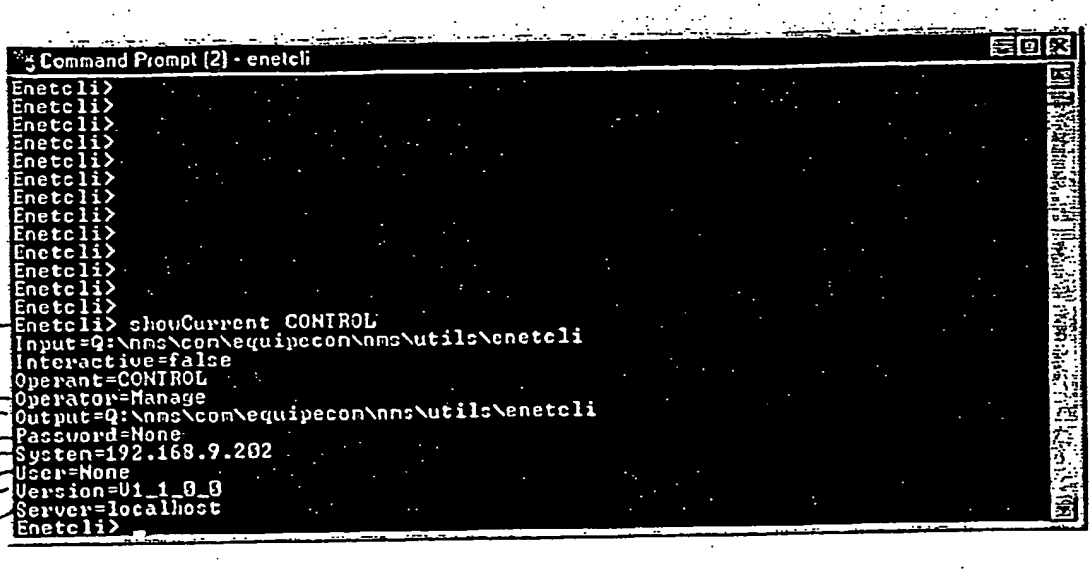

Open ?
No
921a
Yes
OSS client connects to NMS server
921b
manage ?
No
921c
Yes
OSS issues call to NMS server
921d
NMS server opens connection with network device
921e
execute ?
No
921f
Yes
OSS executes template instructions and sends calls to NMS server
921g
NMS server receives calls and completes provisioning task
921h

Fig. 3K



09605.0320.00

Fig. 3L

924 BATCH.

Operant=BATCH
Operator=Execute
Version=V1_1_0_0
924a—Task1=execute-SPATH
924b—Task2=execute-PVC
924c—Task3=execute-SPVC
924d—Task4=load-SPVC-spvc1
924e—Task5=execute-SPVC
924f—Task6=load-SPVC-spvc2
924e—Task7=execute-SPVC

924g—Task50=set-SPATH-PortID-3
924h—Task51=execute-SPATH
924i—Task52=set-SPATH-SlotID-2
924j—Task53=execute-SPATH

Fig. 3M

925

Operant=BATCH
Operator=Execute
Version=V1_1_0_0
925a Task1=execute-CONTROL
925b Task2=execute-SPATH
925c Task3=set-SPATH-PortID-3
925d Task4=execute-SPATH

925e Task61=set-CONTROL-System-192.168.9.201
925f Task62=execute-CONTROL
925g Task63=execute-SPATH

925h Task108=close
925i Task109=set-CONTROL-Server-Server1
925j Task110=set-CONTROL-System-192.168.8.200
925k Task111=execute-CONTROL
925l Task112=execute-SPATH

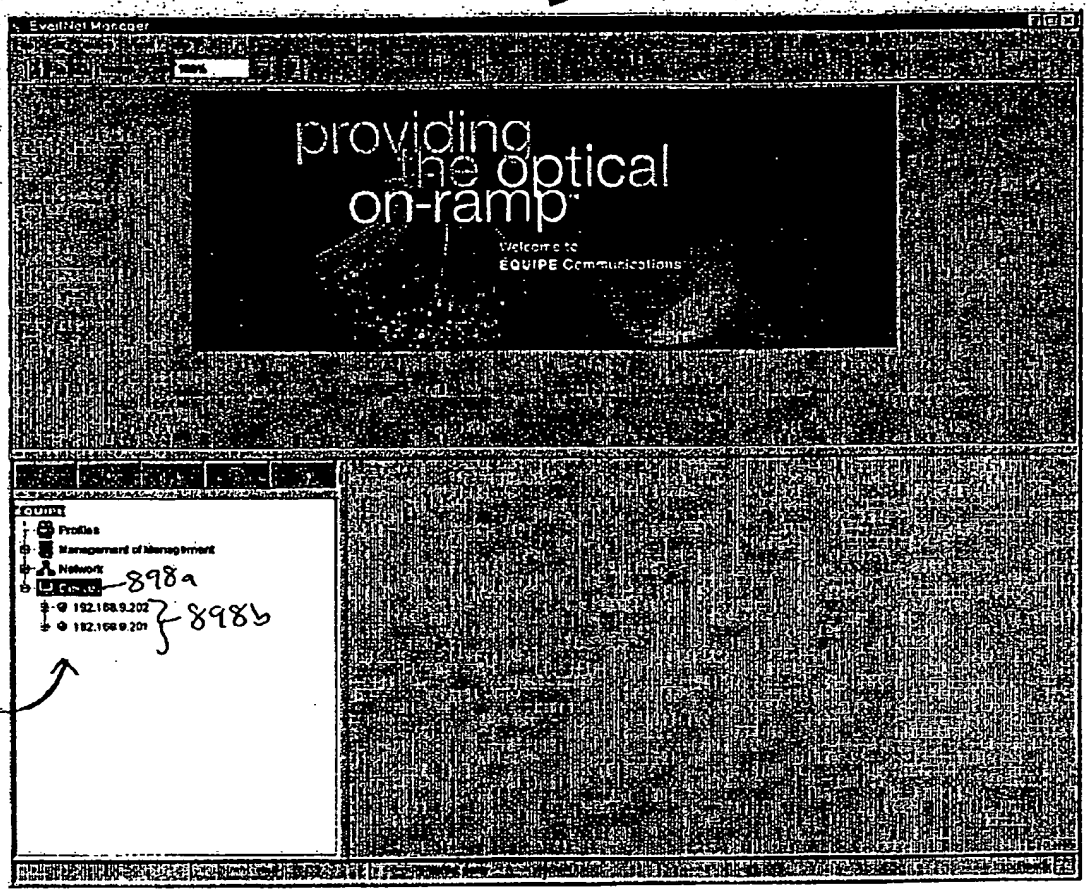

895
providing
the optical
on-ramp
Welcome to
EQUIPE Communications
EQUIPE
Profiles
Network
898a
898b
898

Fig. 4a

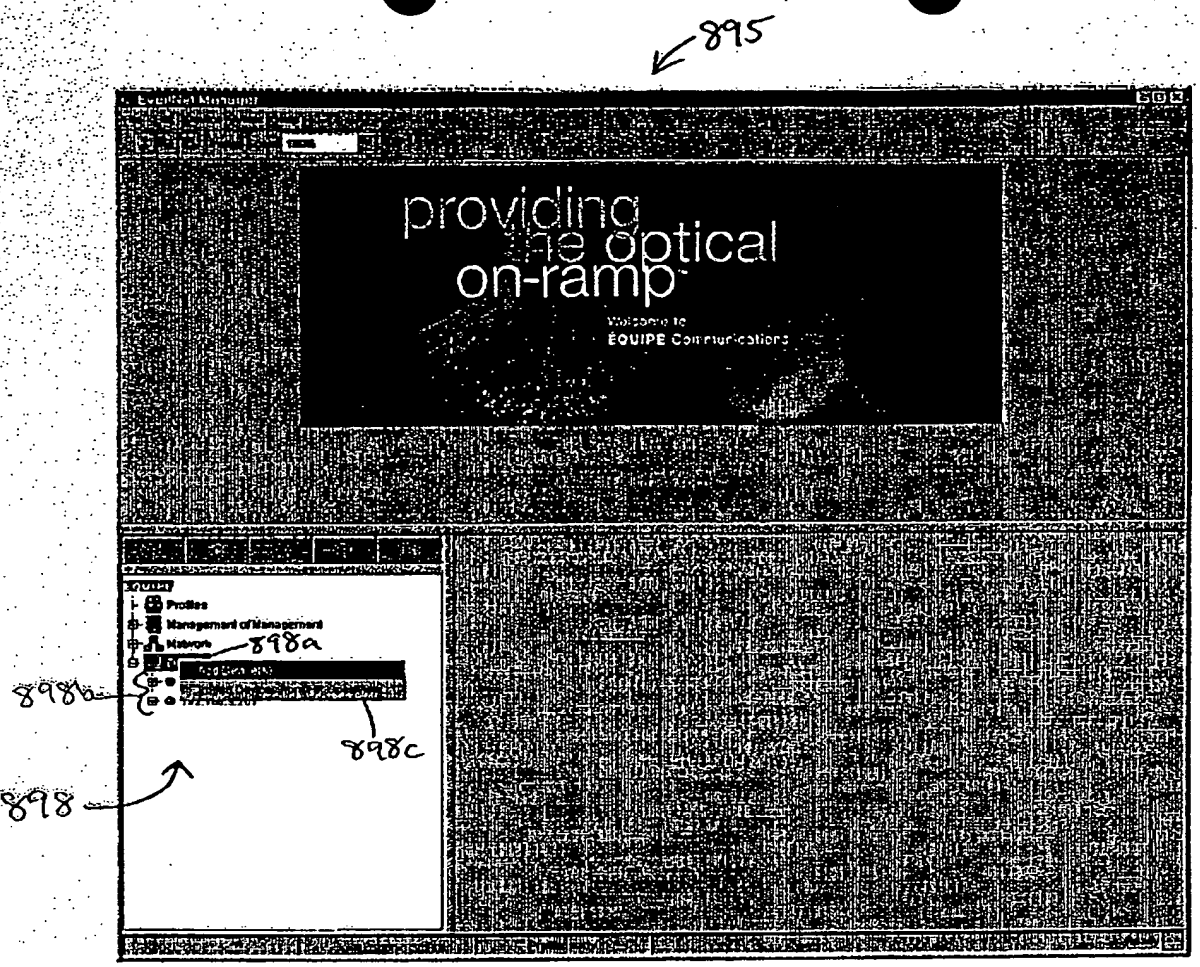

895
providing
the optical
on-ramp
EQUIPE Communications
898a
898b
898c
898

Fig. 4b

Fig. 4c

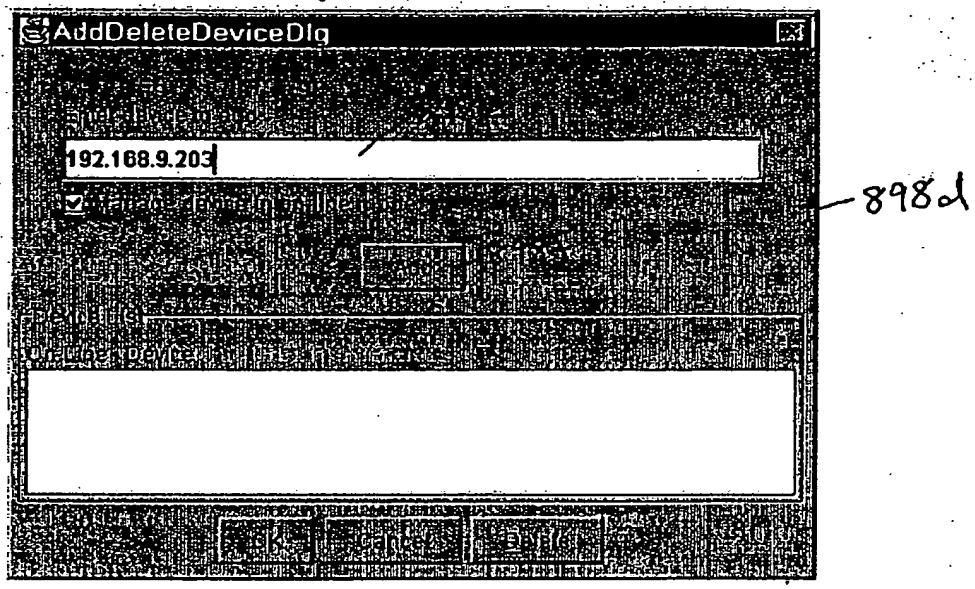
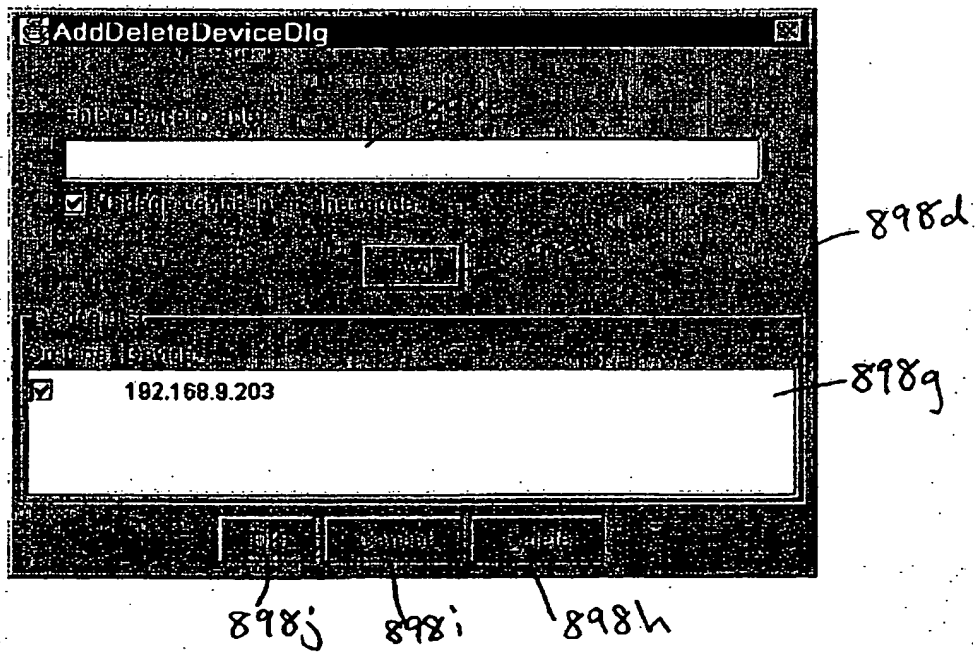

AddDeleteDeviceDlg
192.168.9.203
898d

Fig. 4d


AddDeleteDeviceDlg
898d
192.168.9.203
898g
898j
898i
898h

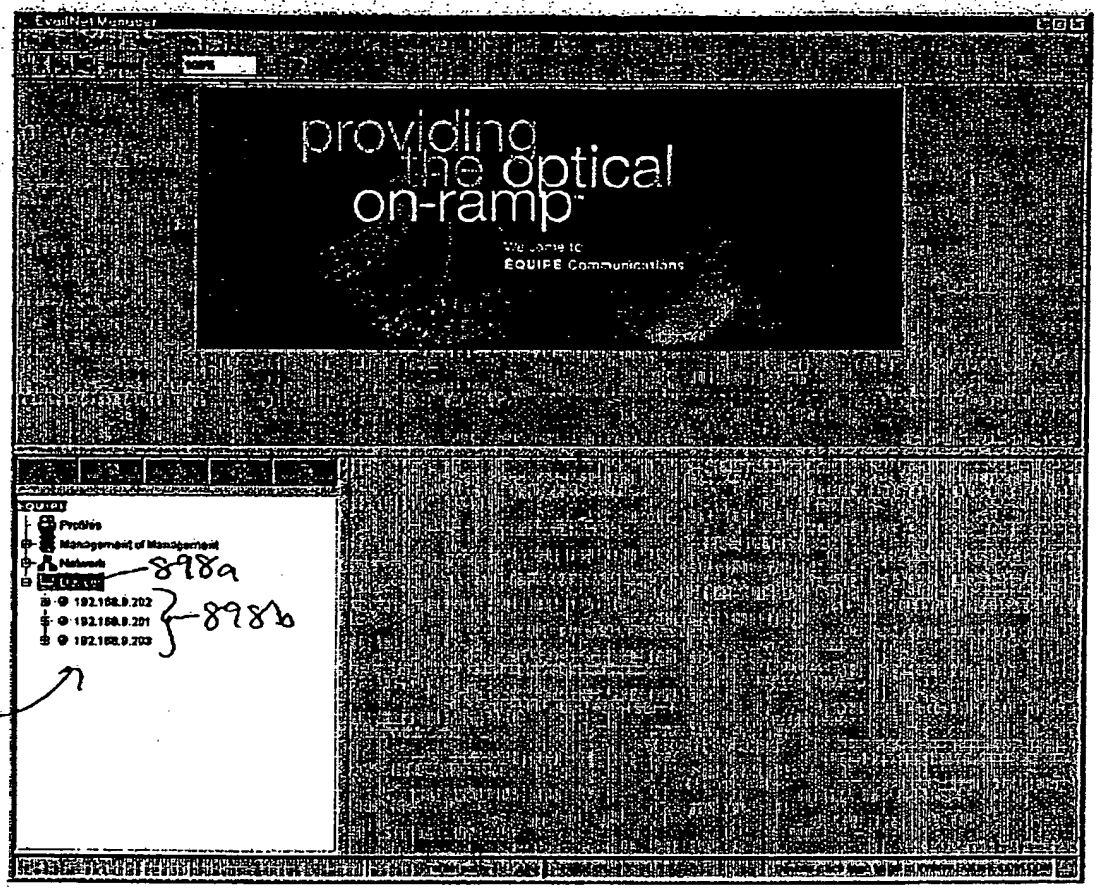


Fig. 4e

09605054 - 092900

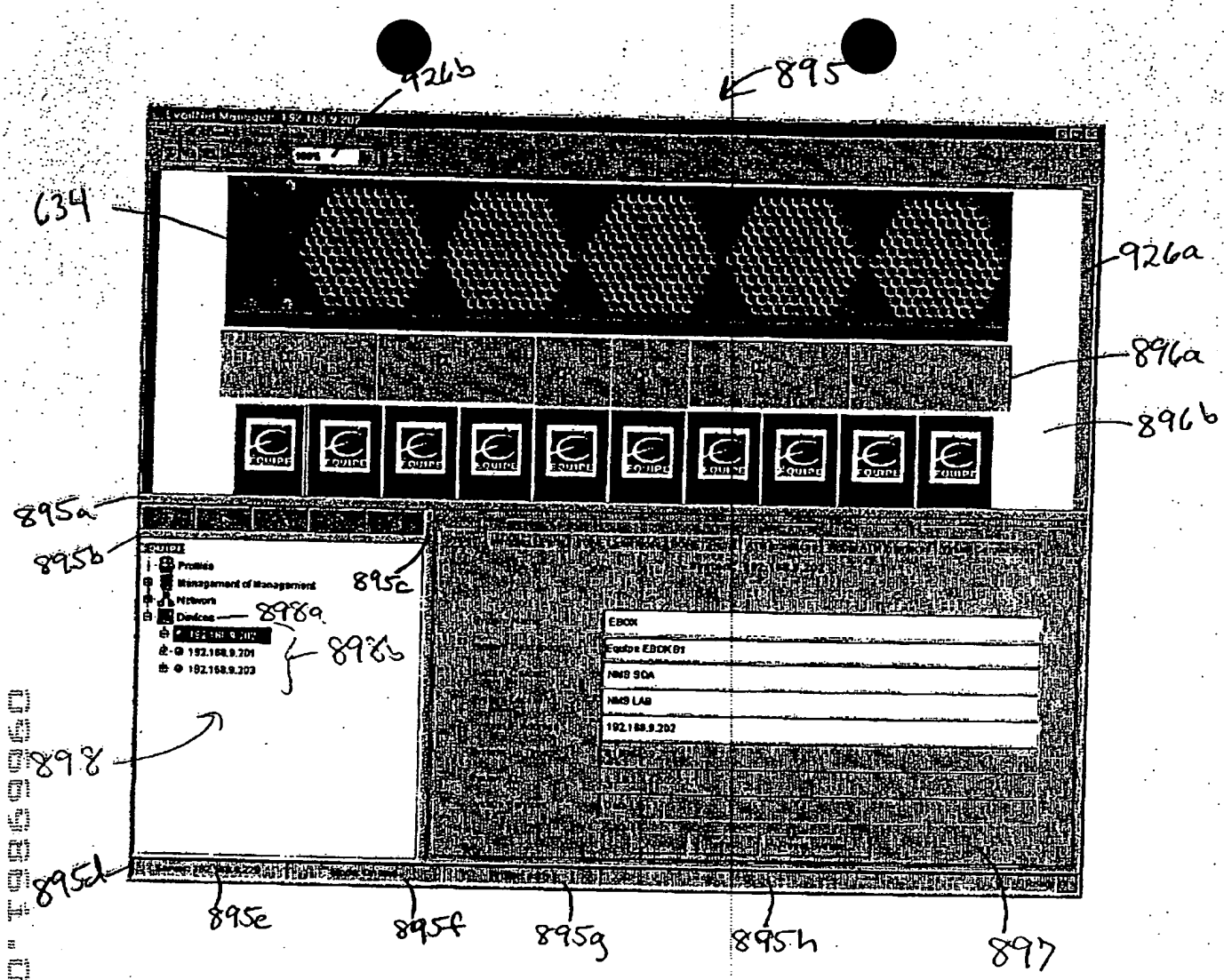

926b
895
634
926a
896a
896b
895a
895b
895c
8989
898b
898
895d
895e
895f
895g
895h
897
EBOX
Equipe EBOX 01
NMS SQA
NMS LAB
192.168.9.202

Fig. 4f

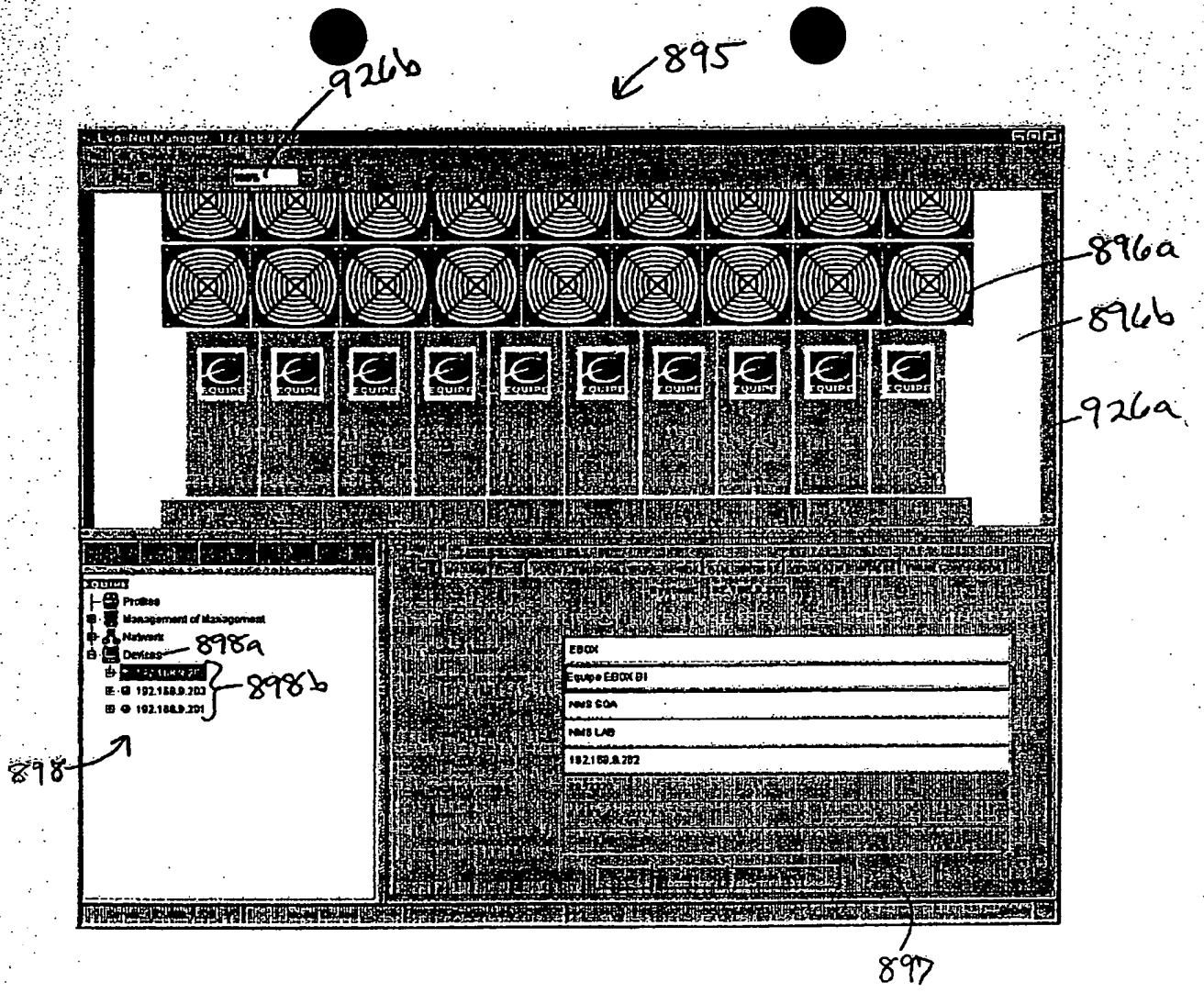

926b
895
896a
896b
926a
898a
898b
898
897
EBOX
Equipe EBOX BI
NMS SQA
NMS LAB
192.168.9.202

Fig. 4g

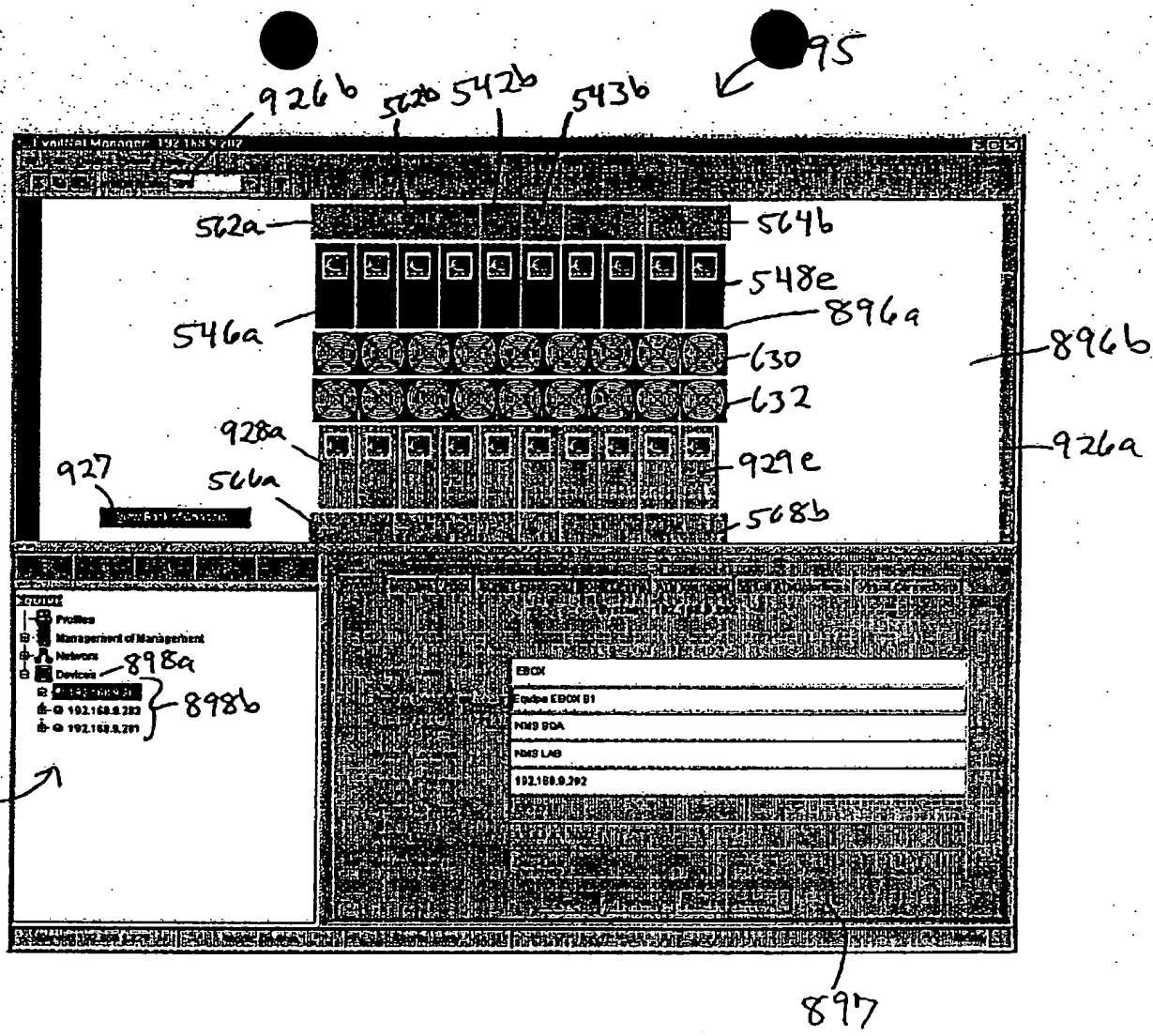

95
926b
562b
542b
543b
562a
546b
548e
546a
896a
896b
630
632
928a
929e
926a
927
566a
568b
Profiles
Management of Management
Networks
Devices
898a
898b
898
EBOX
Equipe EBOX 01
NMS SQA
NMS LAB
192.168.9.202
897

Fig. 4h

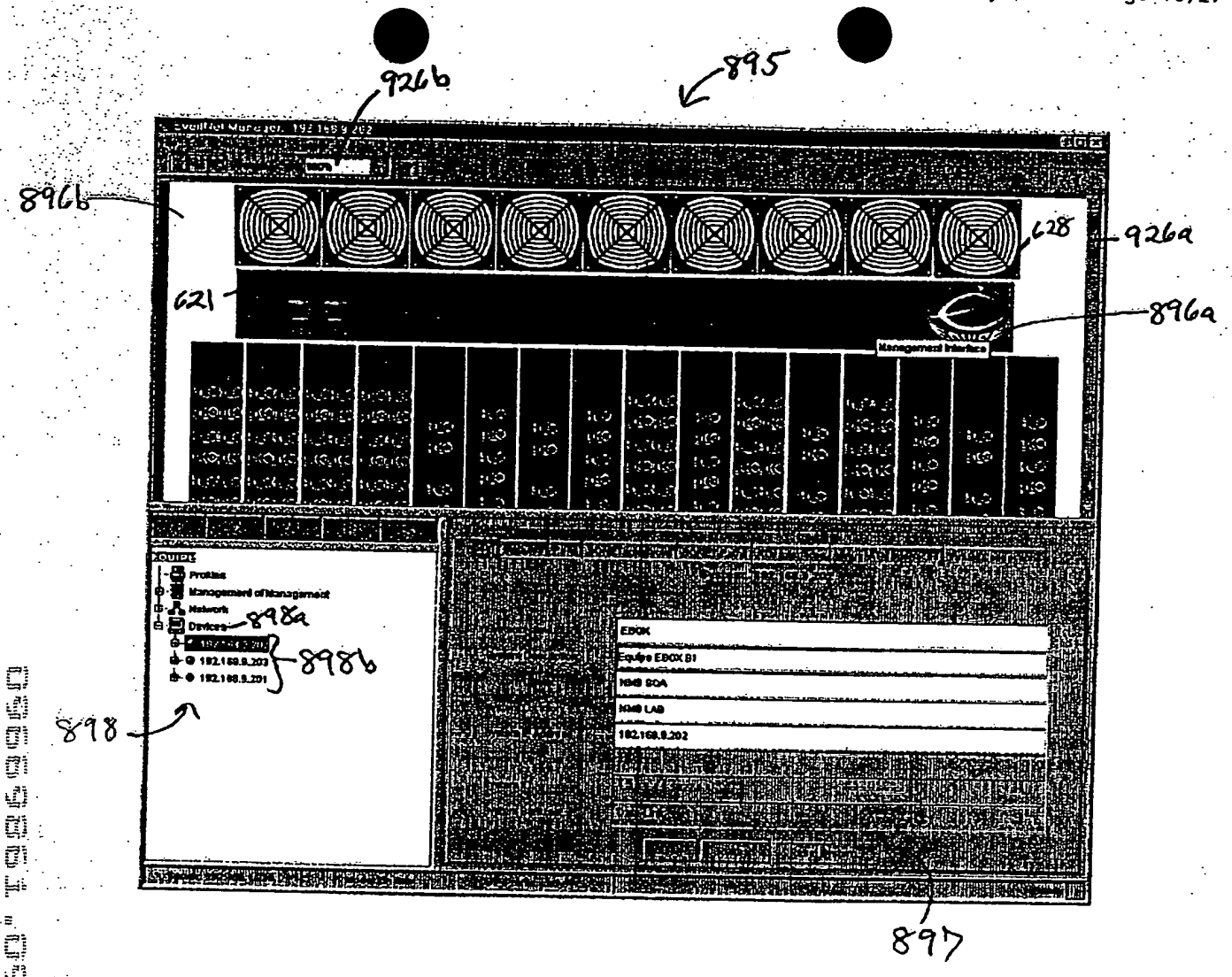

926b
895
896b
628
926a
621
896a
Management Interface
898a
898b
898
897

Fig. 4i

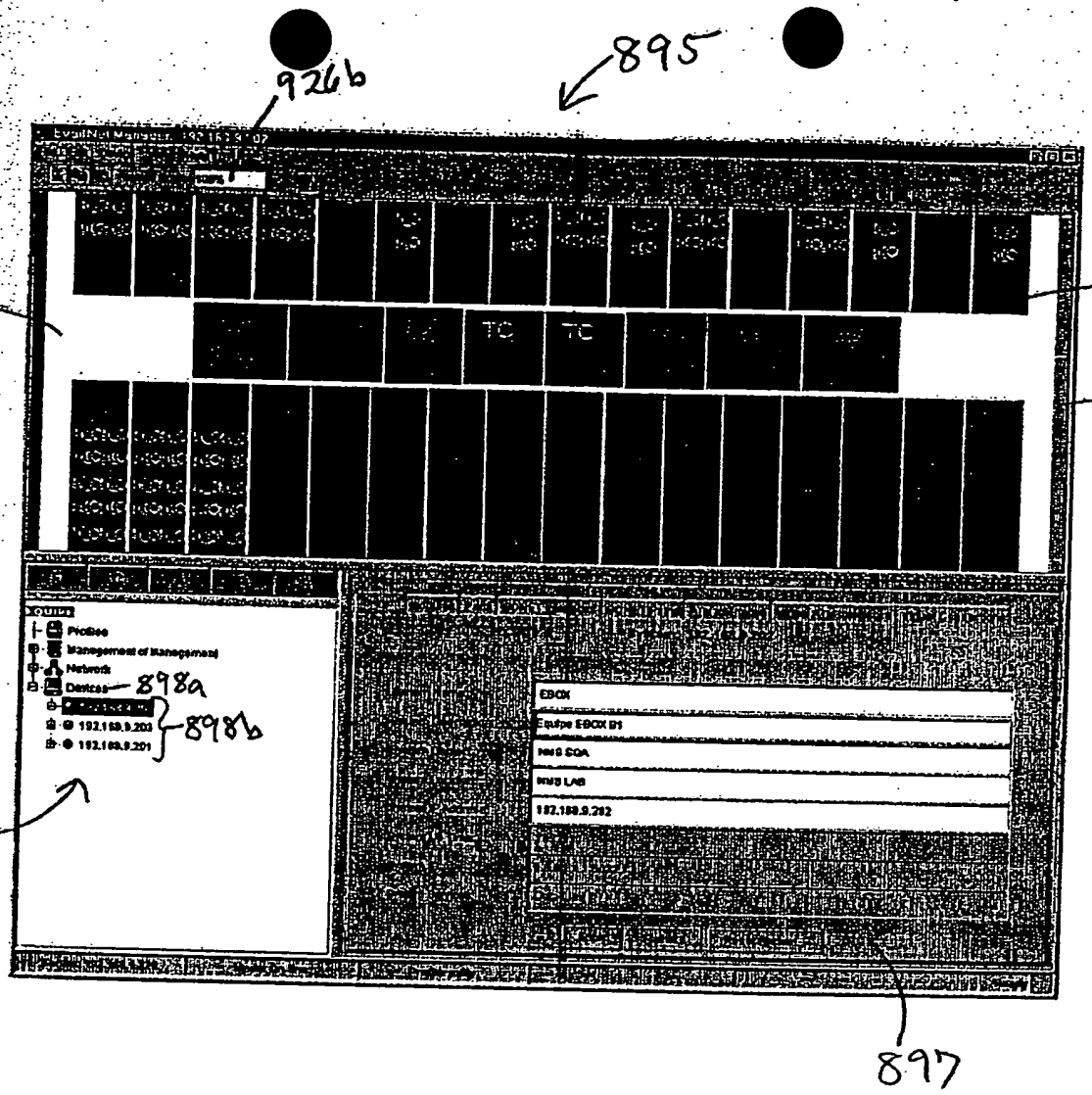


Fig. 4j

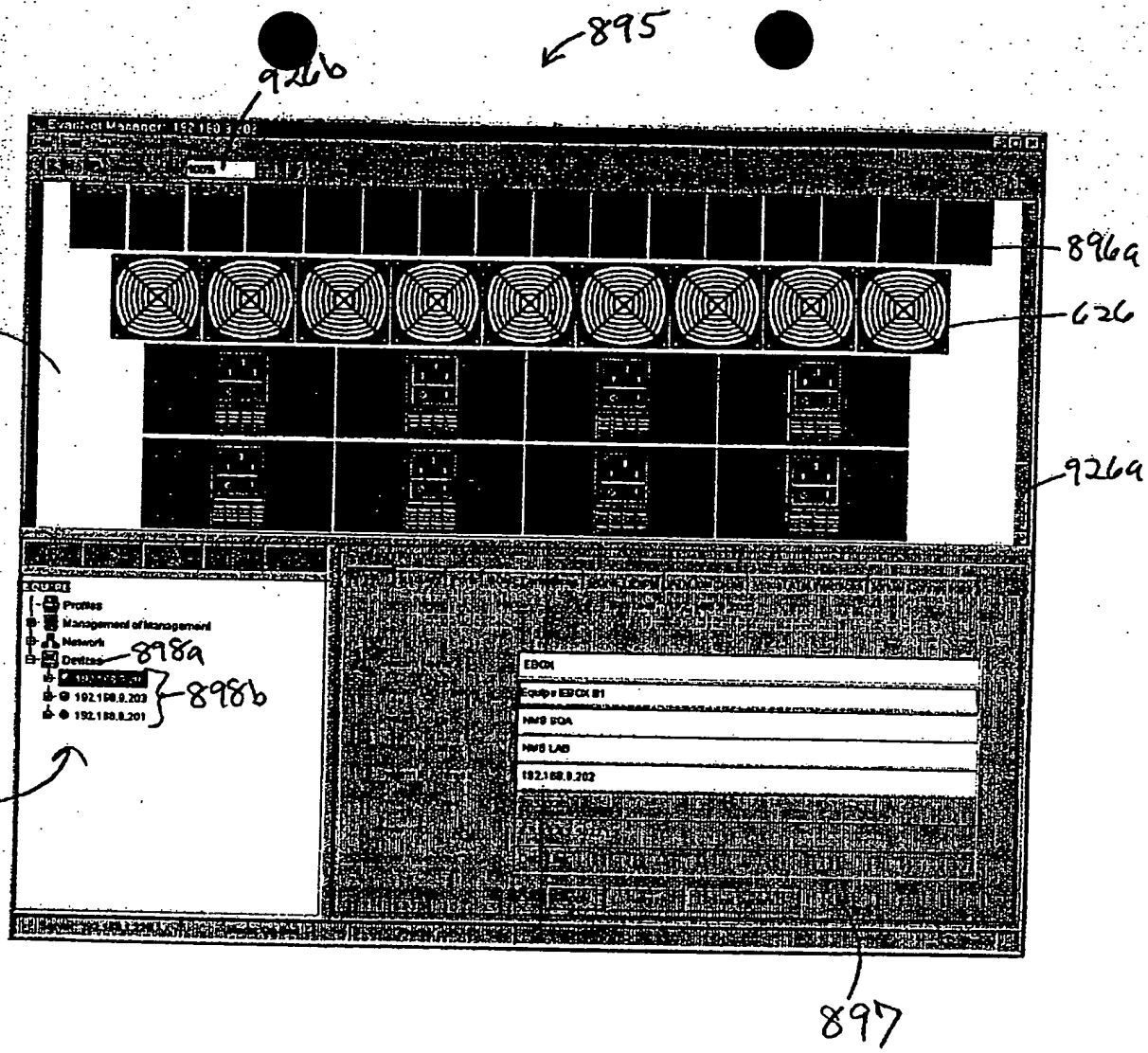

895
926b
896a
896b
626
926a
898a
898b
898
897
Profiles
Management of Management
Network
Devices
192.168.8.203
192.168.8.201
EBDX
Equipe EBDX 81
NMS SOA
NMS LAB
192.168.8.202

Fig. 4K

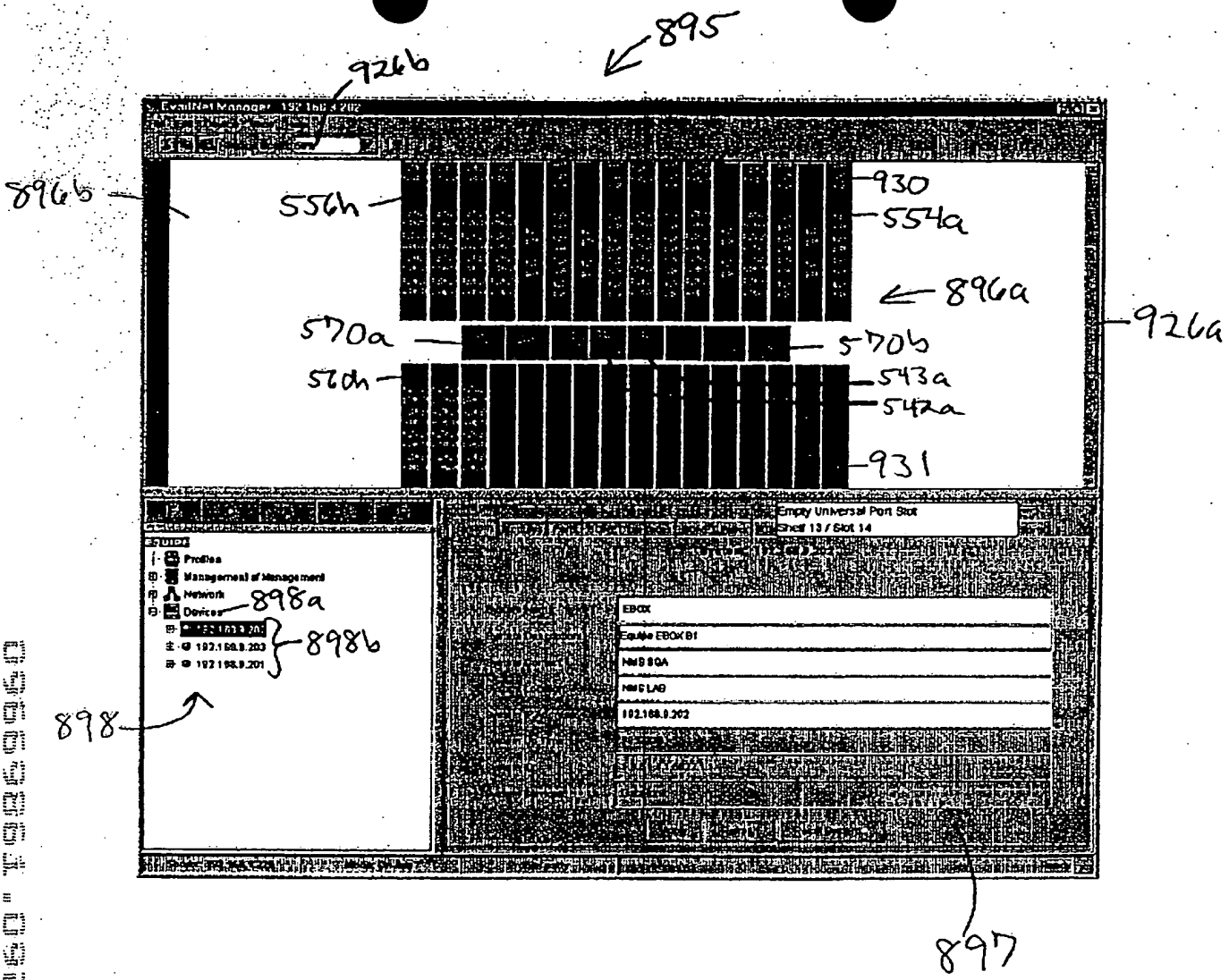

895
926b
896b
556h
930
554a
896a
926a
570a
570b
520h
543a
542a
931
Empty Universal Port Slot
Shelf 13 / Slot 14
Profiles
Management of Management
Network
Devices
898a
898b
898
897

Fig. 41

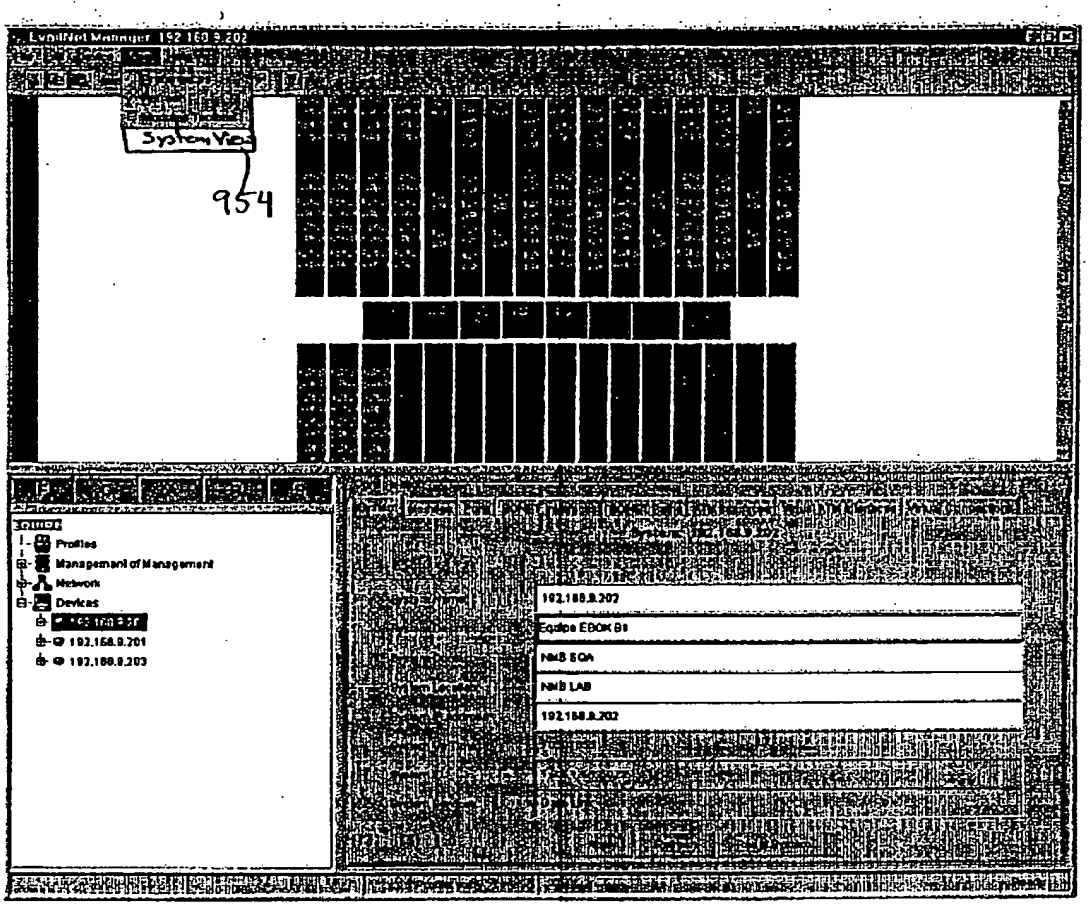

System View
954
Profiles
Management of Management
Network
Devices
192.168.9.201
192.168.9.203
192.168.9.202
Equipe EDGK 01
NMS EQA
NMS LAB
192.168.9.202

Fig. 4m

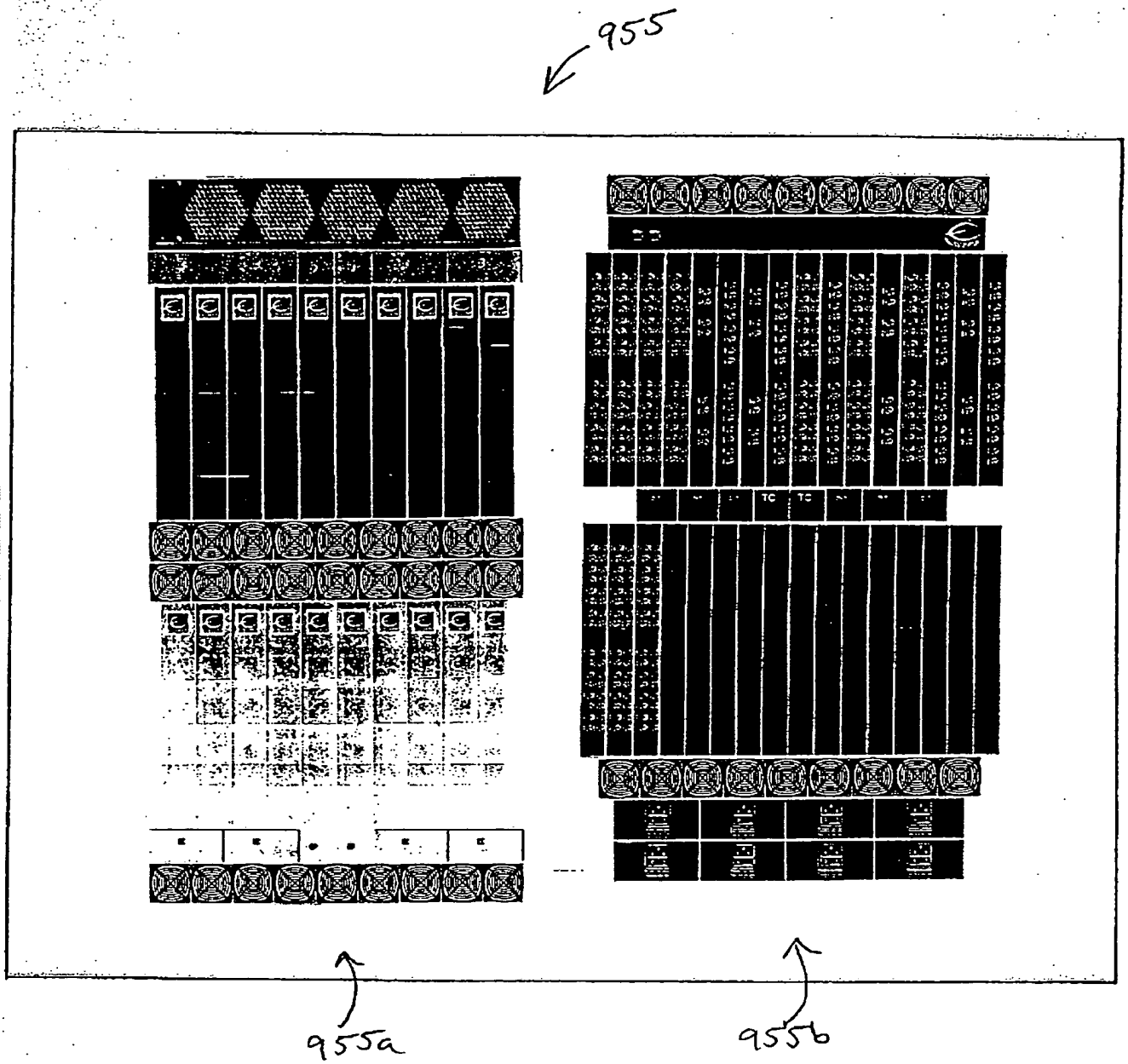


Fig. 4n

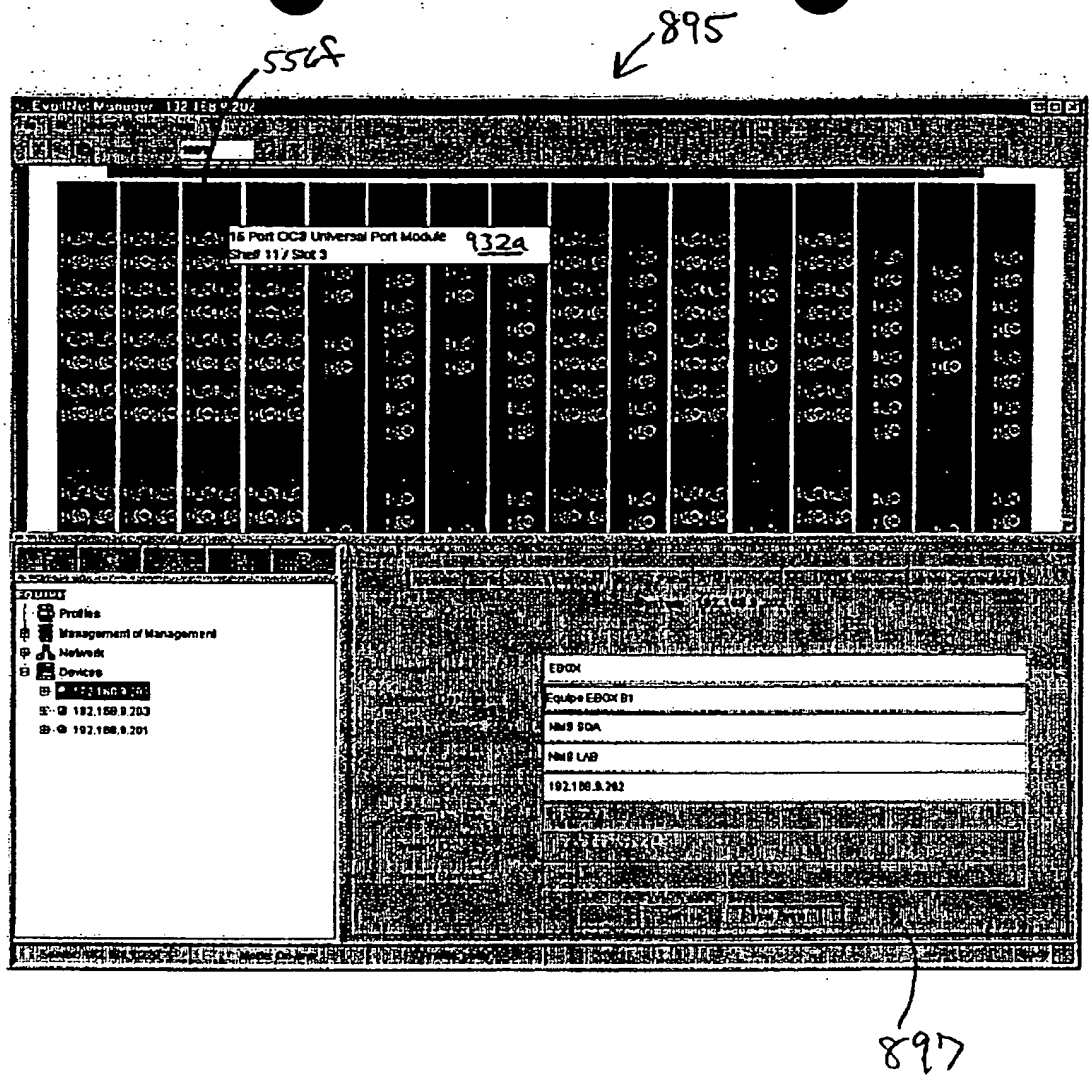

895
554
16 Port OC3 Universal Port Module
Shelf 11 / Slot 3
932a
Profiles
Management of Management
Network
Devices
192.168.9.203
192.168.9.201
EBDX
Equipe EBDX B1
NMS SOA
NMS LAB
192.168.9.202
897

Fig. 40

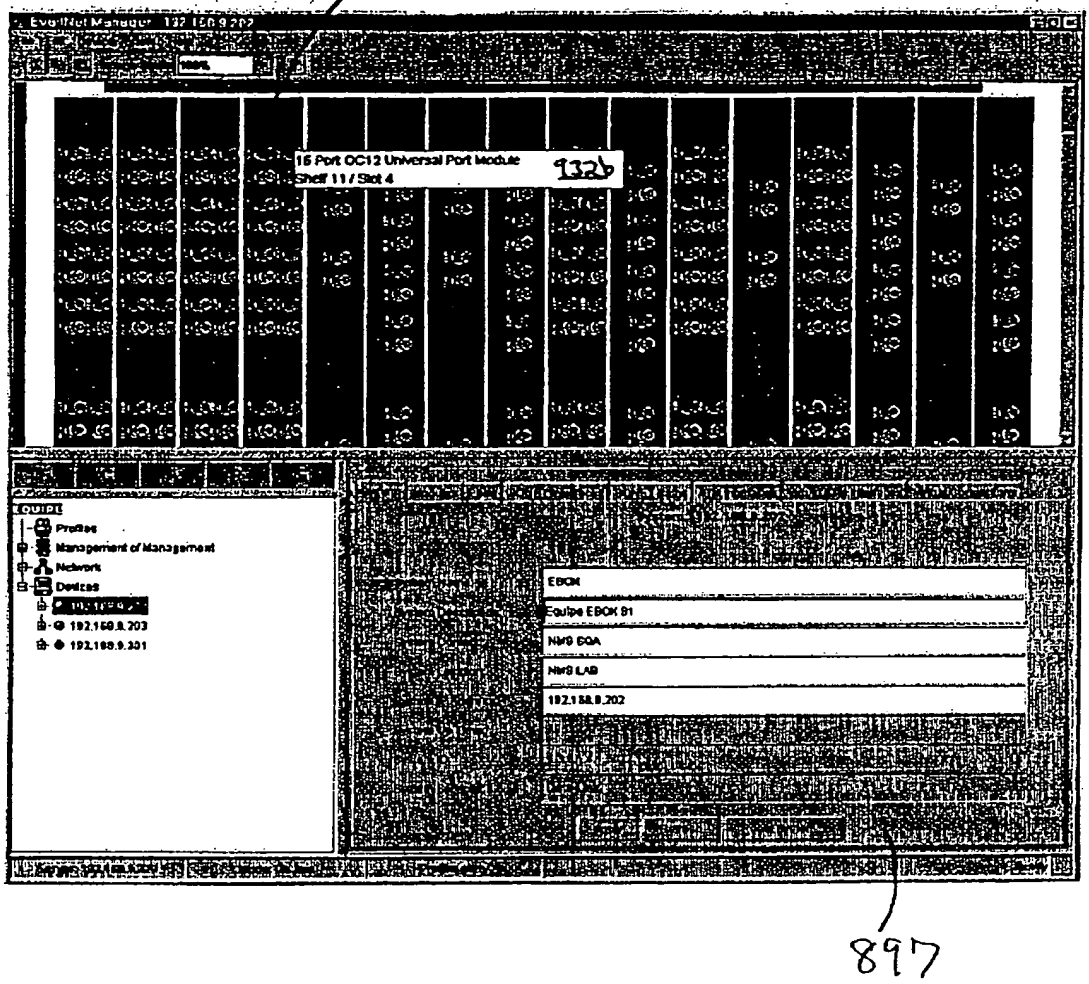

895
556
16 Port OC12 Universal Port Module
Shelf 11 / Slot 4
932b
EQUIPE
Profiles
Management of Management
Network
Devices
192.168.9.203
192.168.9.301
EBOK
Equipe EBOK 81
NMS EOA
NMS LAB
192.168.9.202
897

Fig. 4P

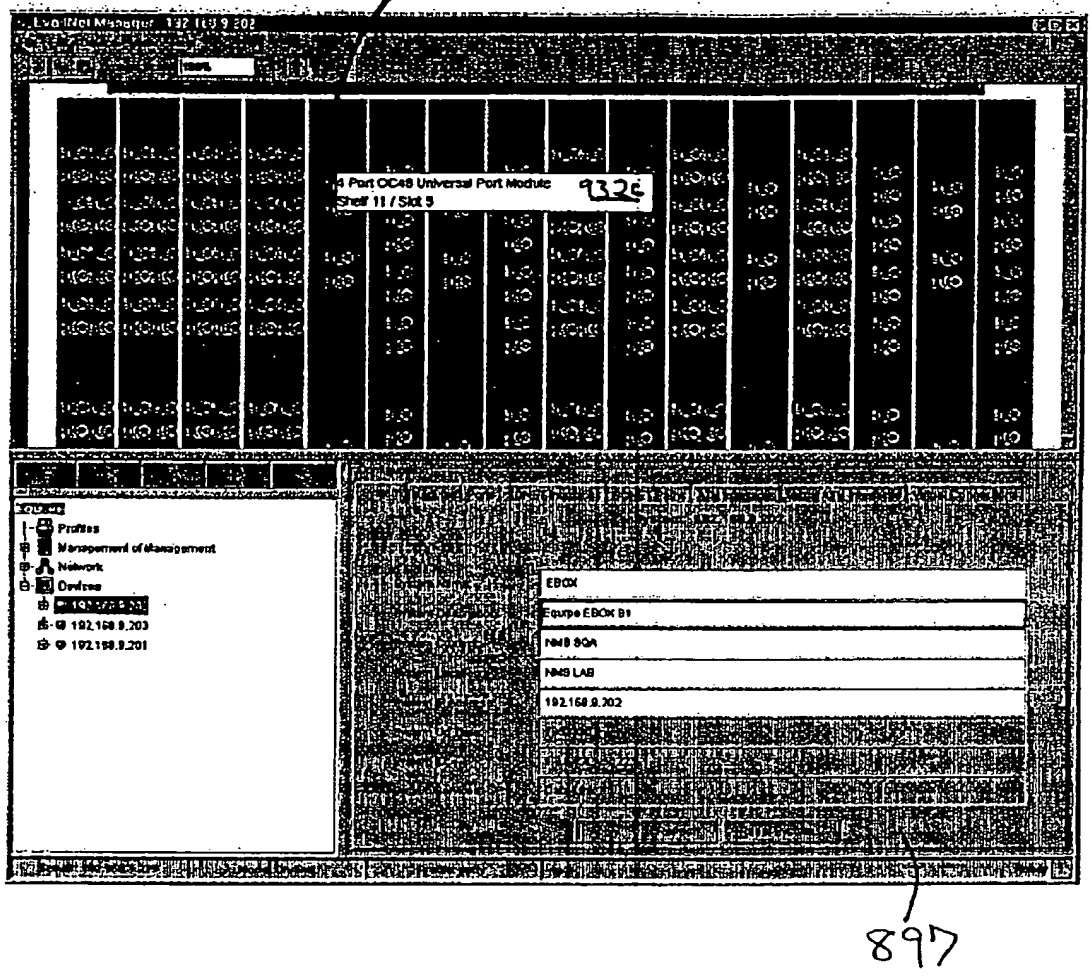

556
895
4 Port OC48 Universal Port Module
Shelf 11 / Slot 9
932
Profiles
Network
Devices
192.168.9.203
192.168.9.201
EBOX
Equipe EBOX 91
NMS SQA
NMS LAB
192.168.9.202
897

Fig. 4g

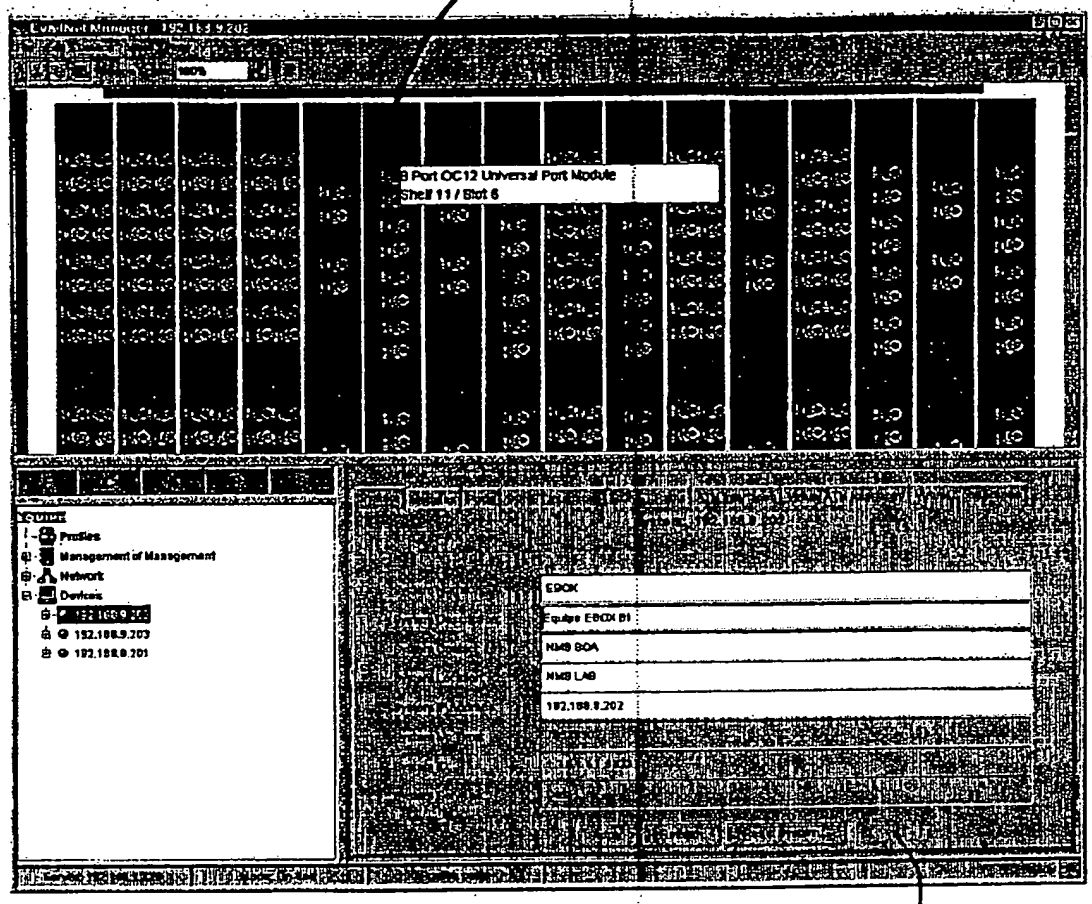

556c
8
8 Port OC12 Universal Port Module
Shelf 11 / Slot 6
Profiles
Management of Management
Network
Devices
192.168.9.203
192.168.9.201
EPOX
NMS SOA
NMS LAB
192.168.9.202
897

Fig. 4F

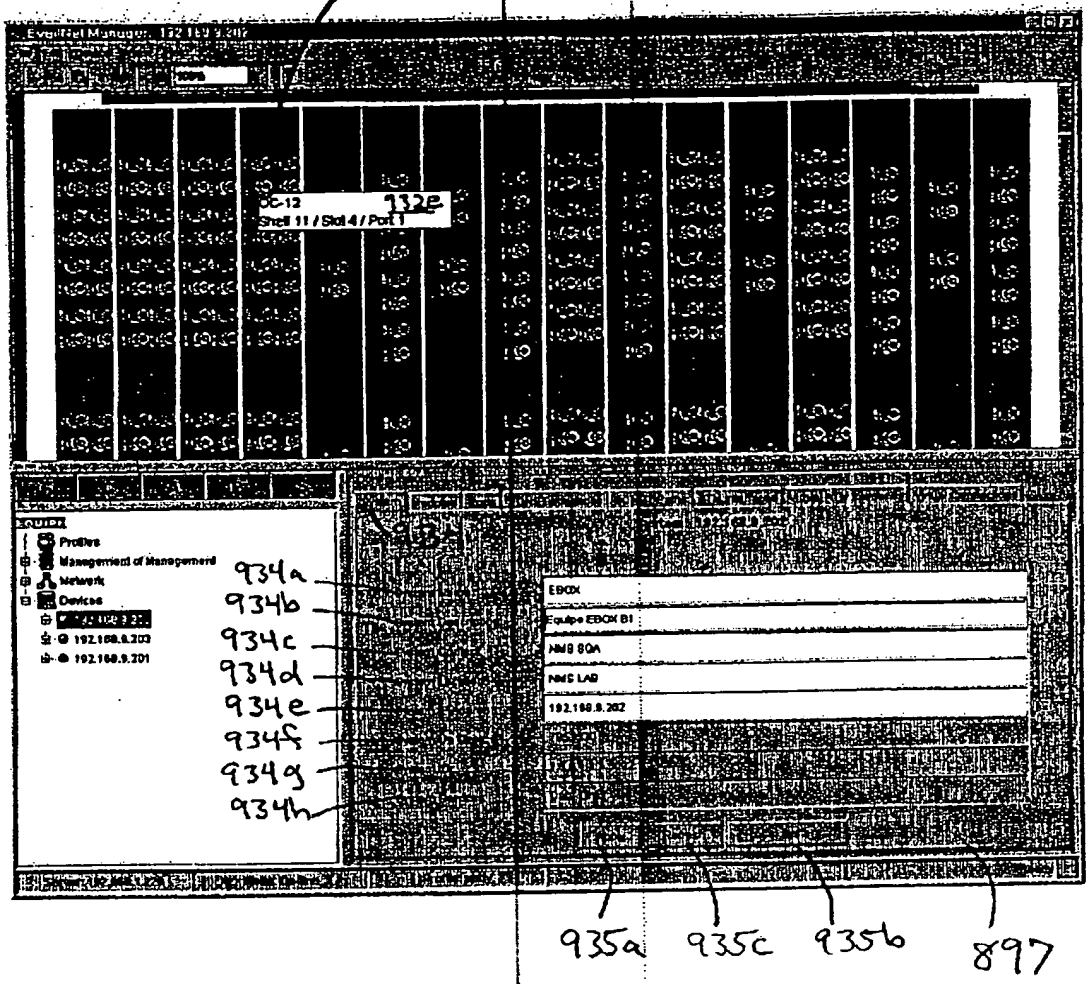

933
800
932
934a
934b
934c
934d
934e
934f
934g
934h
935a
935c
935b
897

Fig. 4s

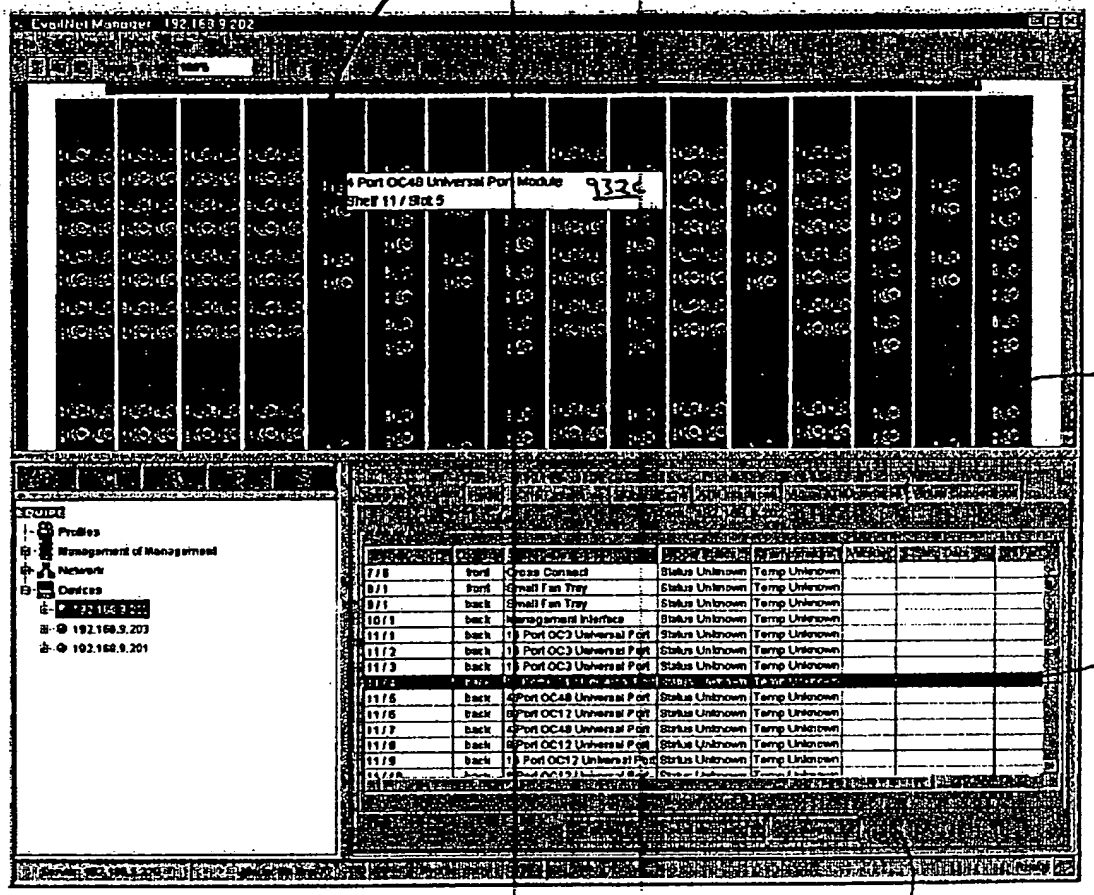


Fig. 4f

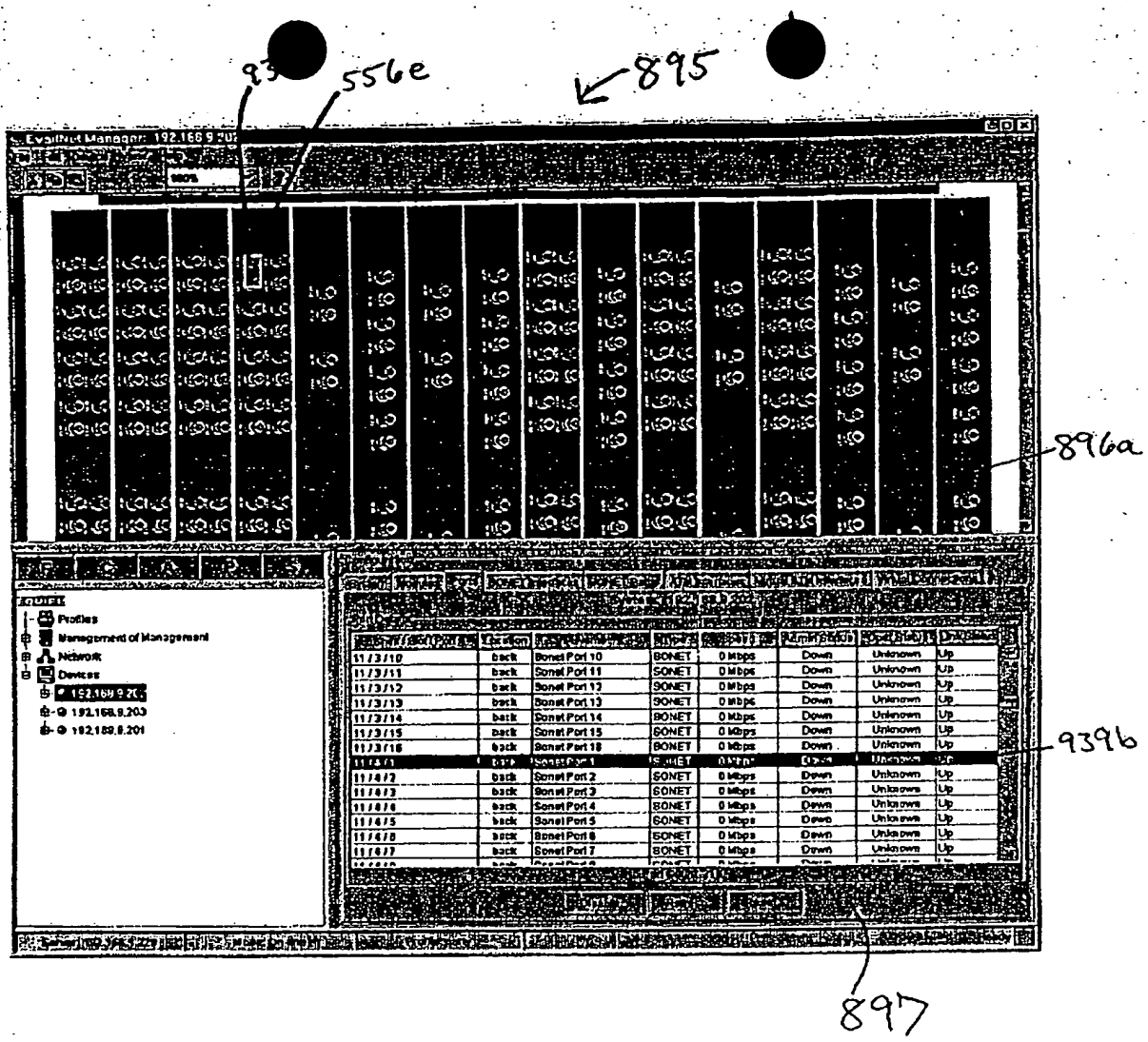


Fig. 4u

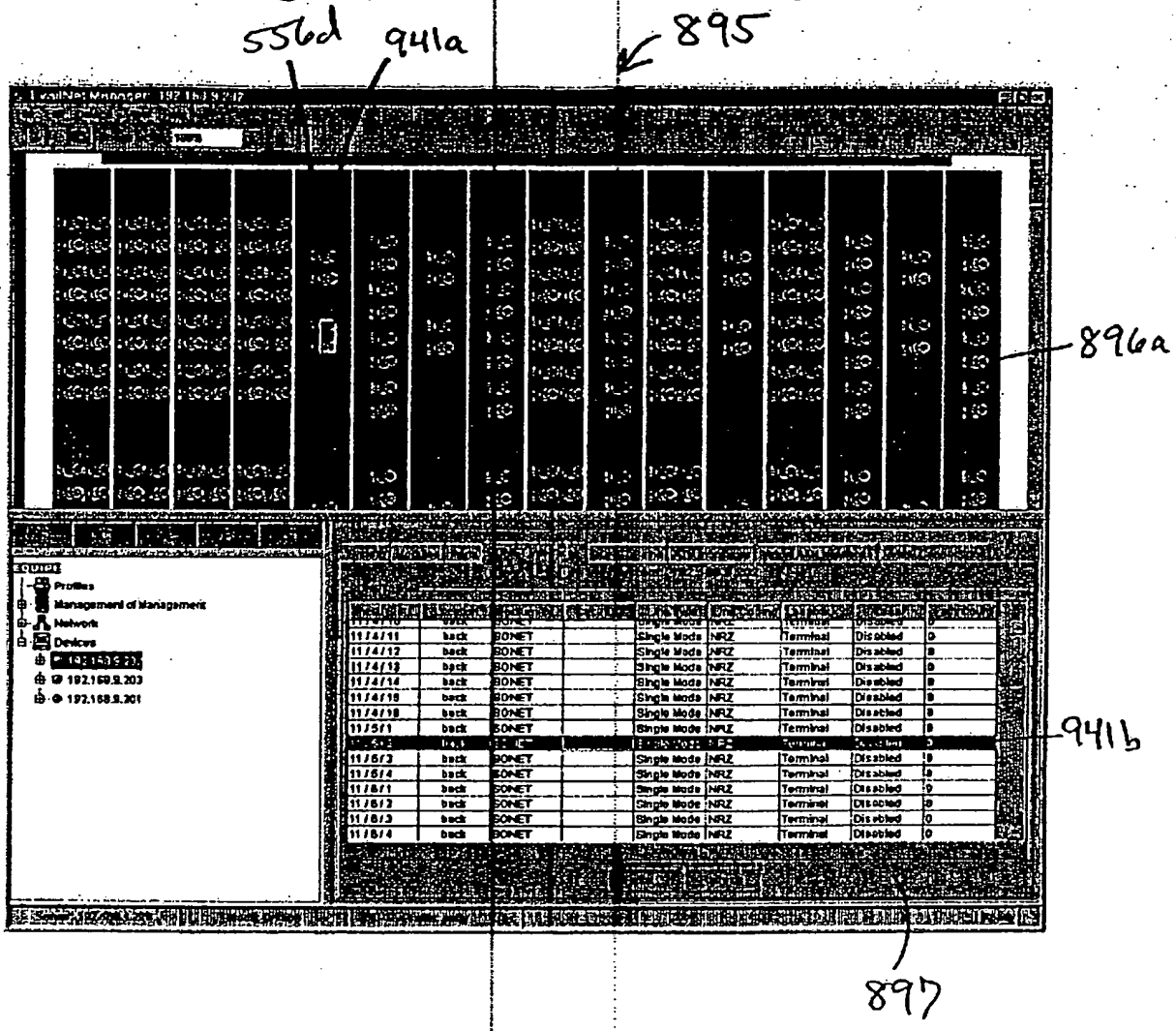

556d
941a
895
896a
941b
897
Profiles
Management of Management
Network
Devices
192.168.9.203
192.168.9.201

Fig. 4v

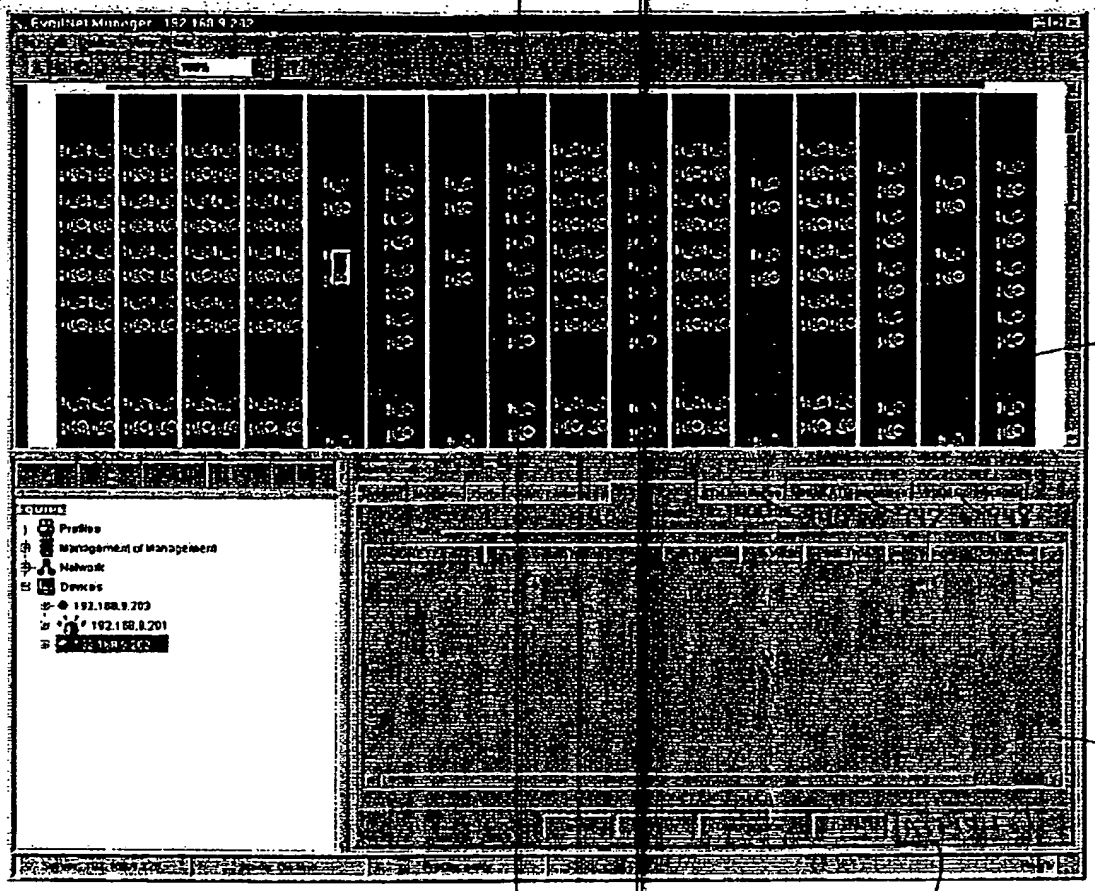


Fig. 4W

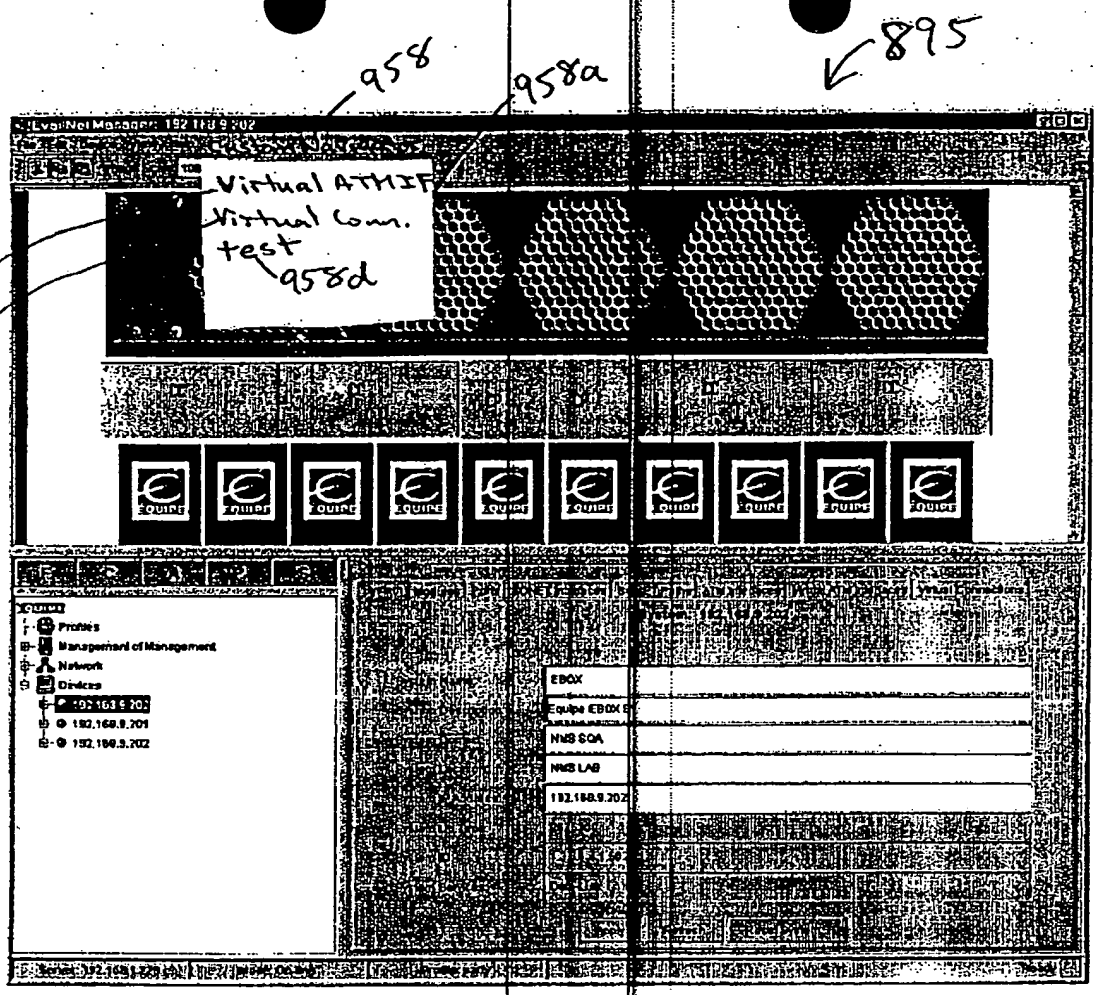

958
958a
895
Virtual ATMIF
Virtual Com.
test
958d
958b
958c
Profiles
Management of Management
Network
Devices
192.168.9.201
192.168.9.202
EBOX
NMS SQA
NMS LAB
192.168.9.202

Fig. 4X

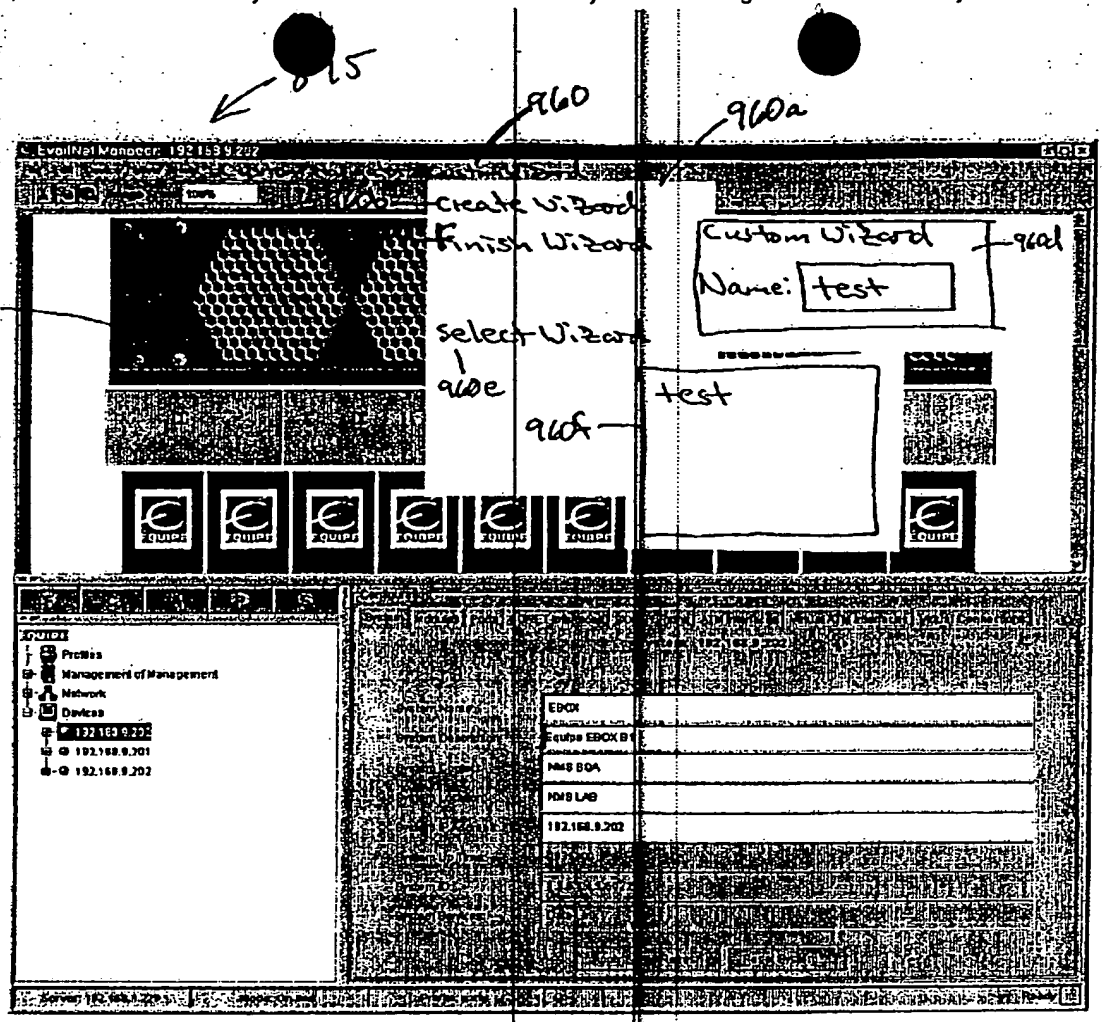

915
960
960a
Create Wizard
Finish Wizard
Custom Wizard
960d
Name:
test
896a
Select Wizard
960e
960f
test
EBOX
Equipe EBOX B1
NMS BOA
NMS LAB
192.168.9.202

Fig. 4Y

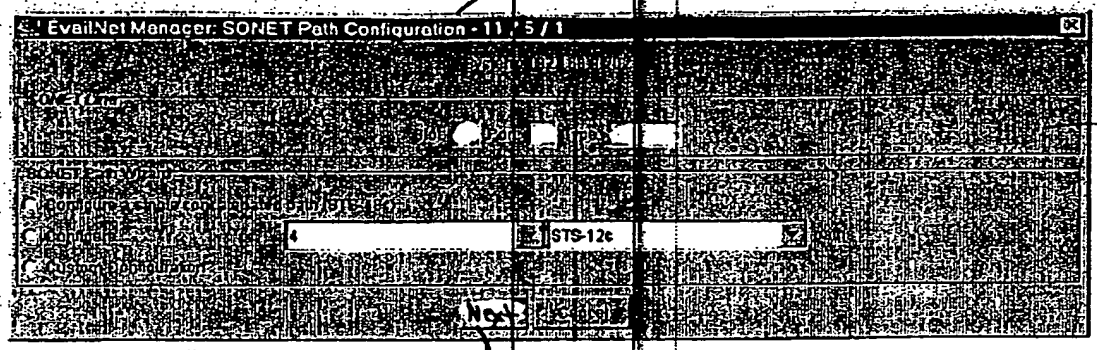

961
EvailNet Manager: SONET Path Configuration - 11 / 5 / 1
STS-12c
961a
961b

Fig. 42

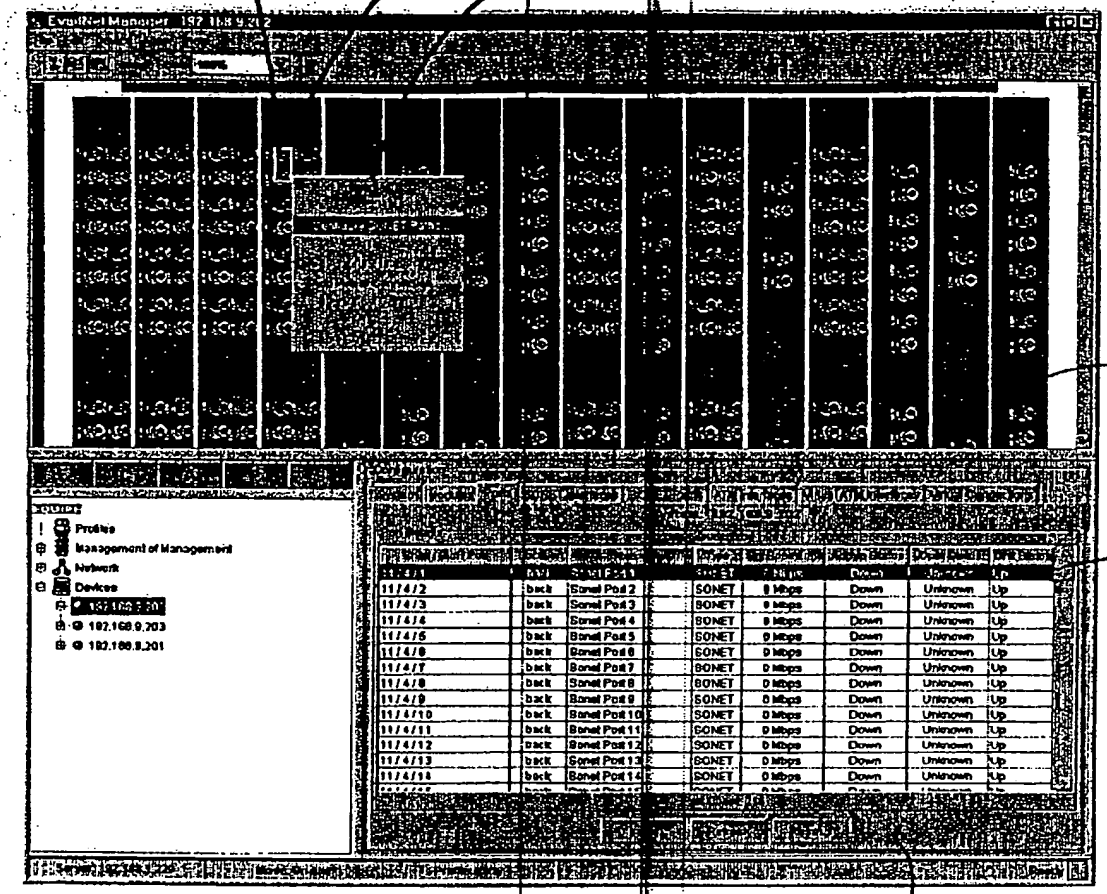


Fig. 5a

Fig. 5b

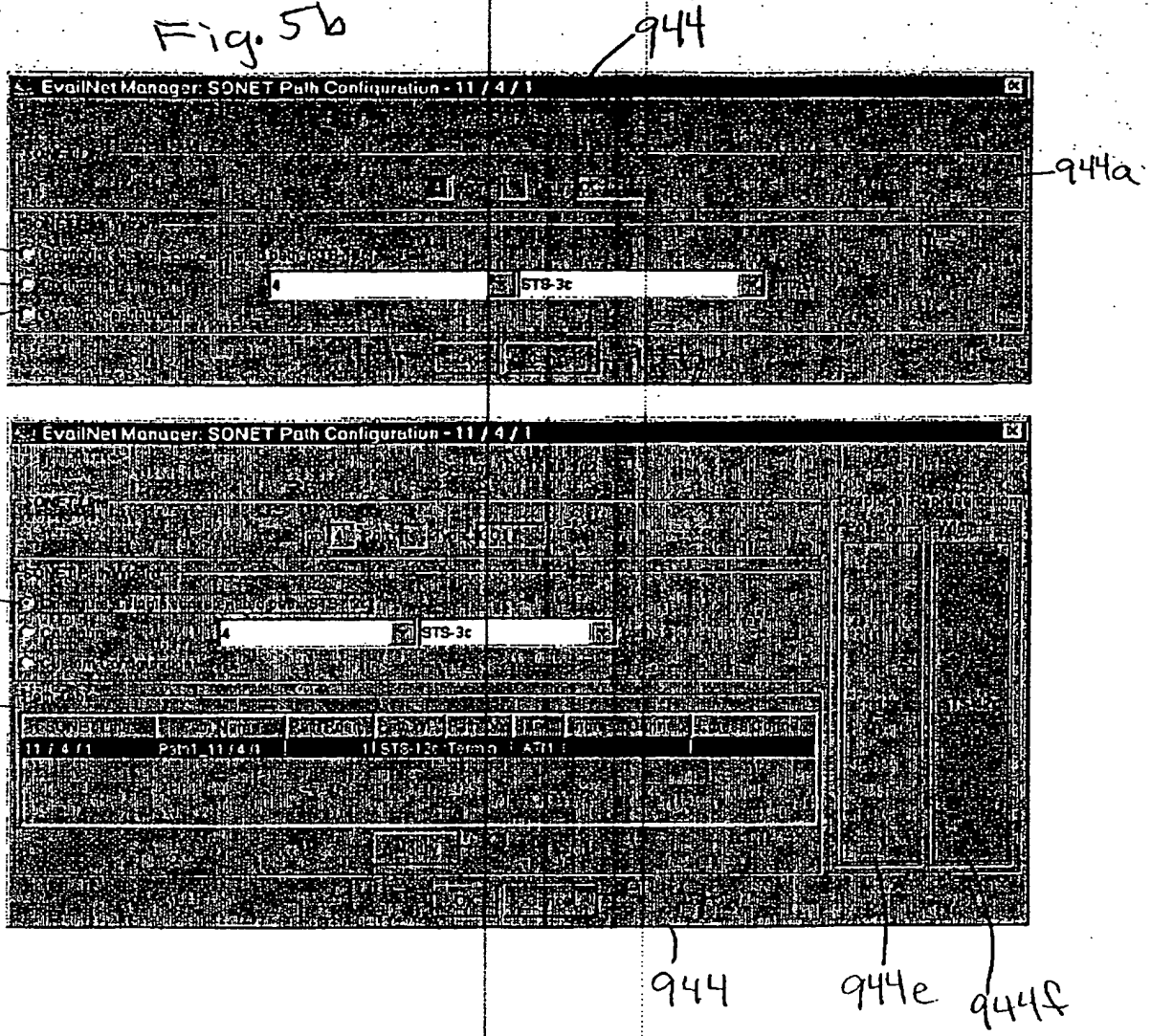
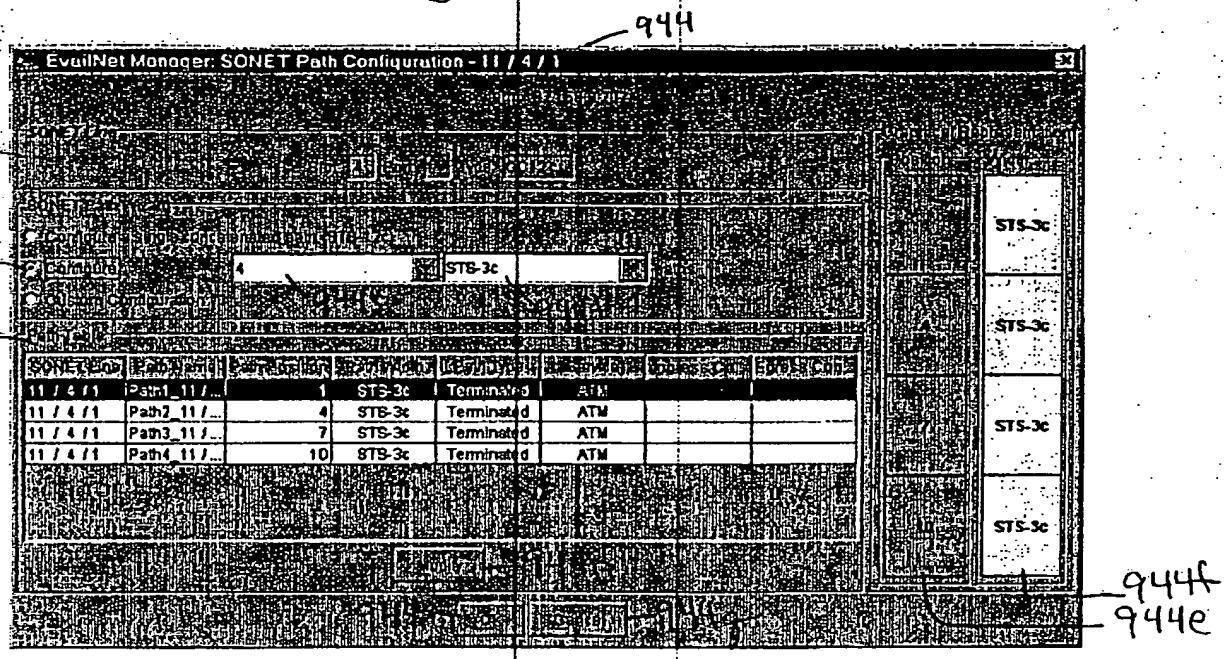

944
EvailNet Manager: SONET Path Configuration - 11 / 4 / 1
944a
944b
944c
944d
STS-3c
EvailNet Manager: SONET Path Configuration - 11 / 4 / 1
944b
STS-3c
944g
944
944e
944f

Fig. 5c

Fig. 5d


944
EvailNet Manager: SONET Path Configuration - 11 / 4 / 1
944a
944c
944g
STS-3c
STS-3c
STS-3c
STS-3c
944f
944e

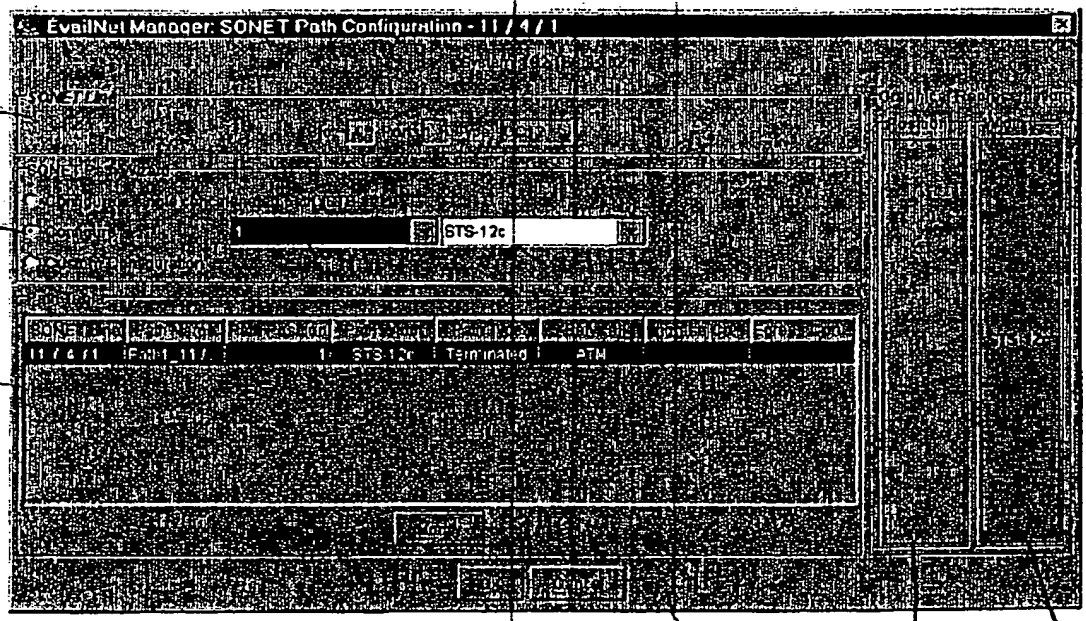
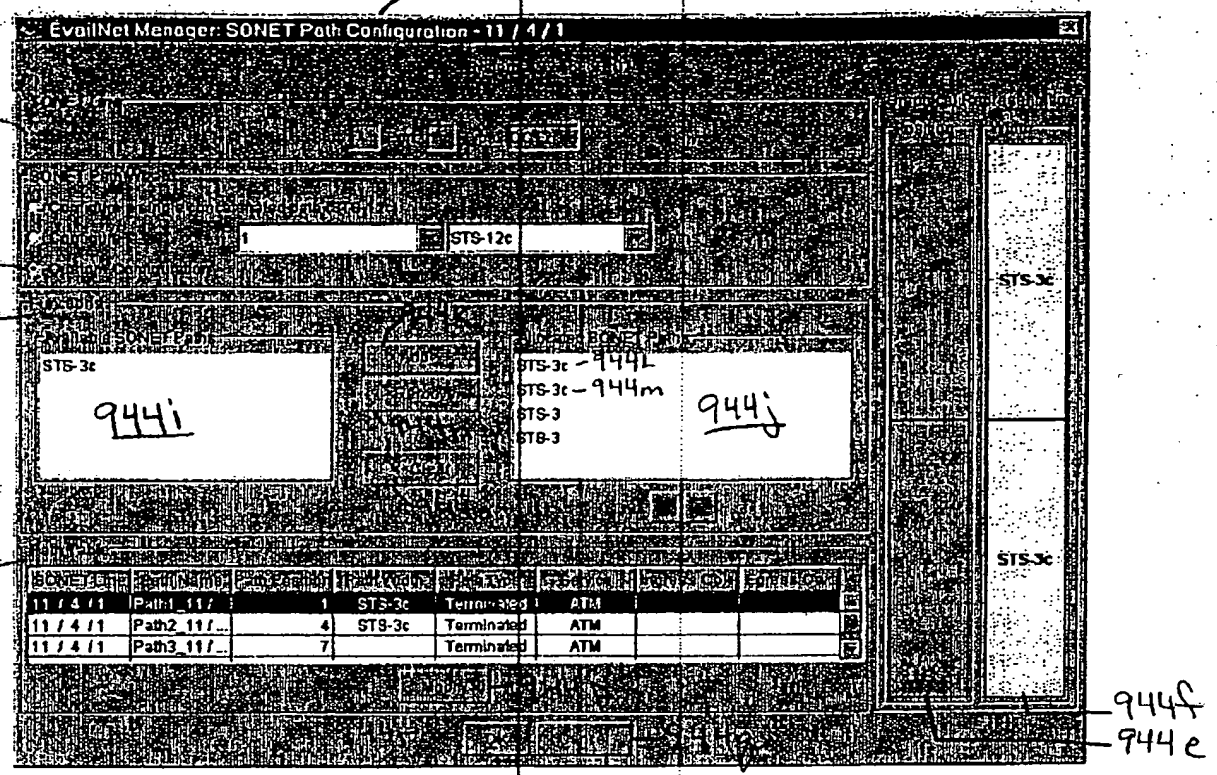

EvailNet Manager: SONET Path Configuration - 11 / 4 / 1
944a
944c
944g
STS-12c
944
944e
944f

Fig. 5e

Fig. 5f


944
EvailNet Manager: SONET Path Configuration - 11 / 4 / 1
944a
944d
944h
STS-12c
STS-3c
STS-3c
944i
STS-3c - 944L
STS-3c - 944m
STS-3
STB-3
944j
944g
11 / 4 / 1 Path1_11 / 1 STS-3c Terminated ATM
11 / 4 / 1 Path2_11 / 4 STS-3c Terminated ATM
11 / 4 / 1 Path3_11 / 7 Terminated ATM
944f
944e

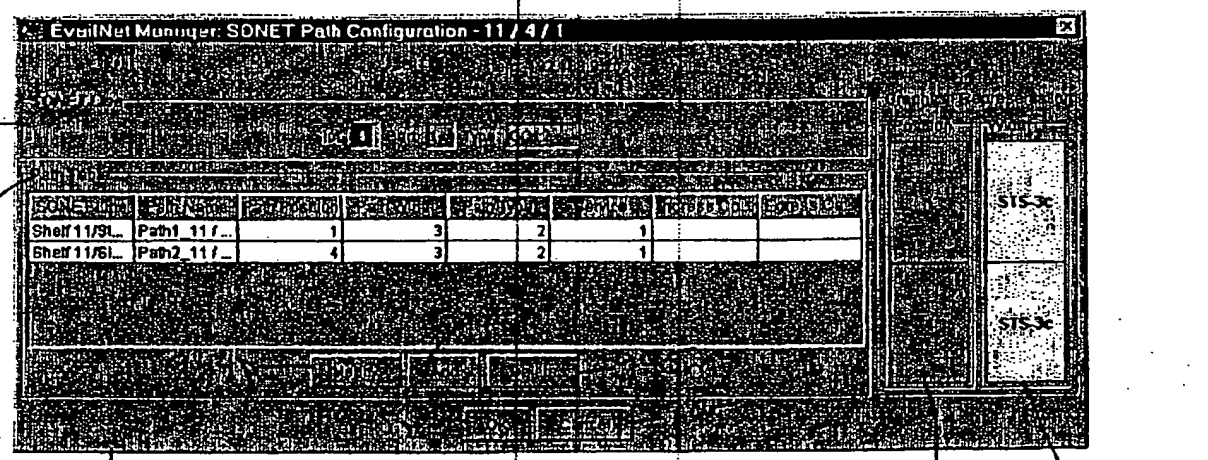

EvailNet Manager: SONET Path Configuration - 11 / 4 / 1
945a
945g
Shelf 11/9L.. Path1_11 / 1 3 2 1
Shelf 11/6L.. Path2_11 / 4 3 2 1
STS-3c
STS-3c
945
945e
945f

Fig. 5g

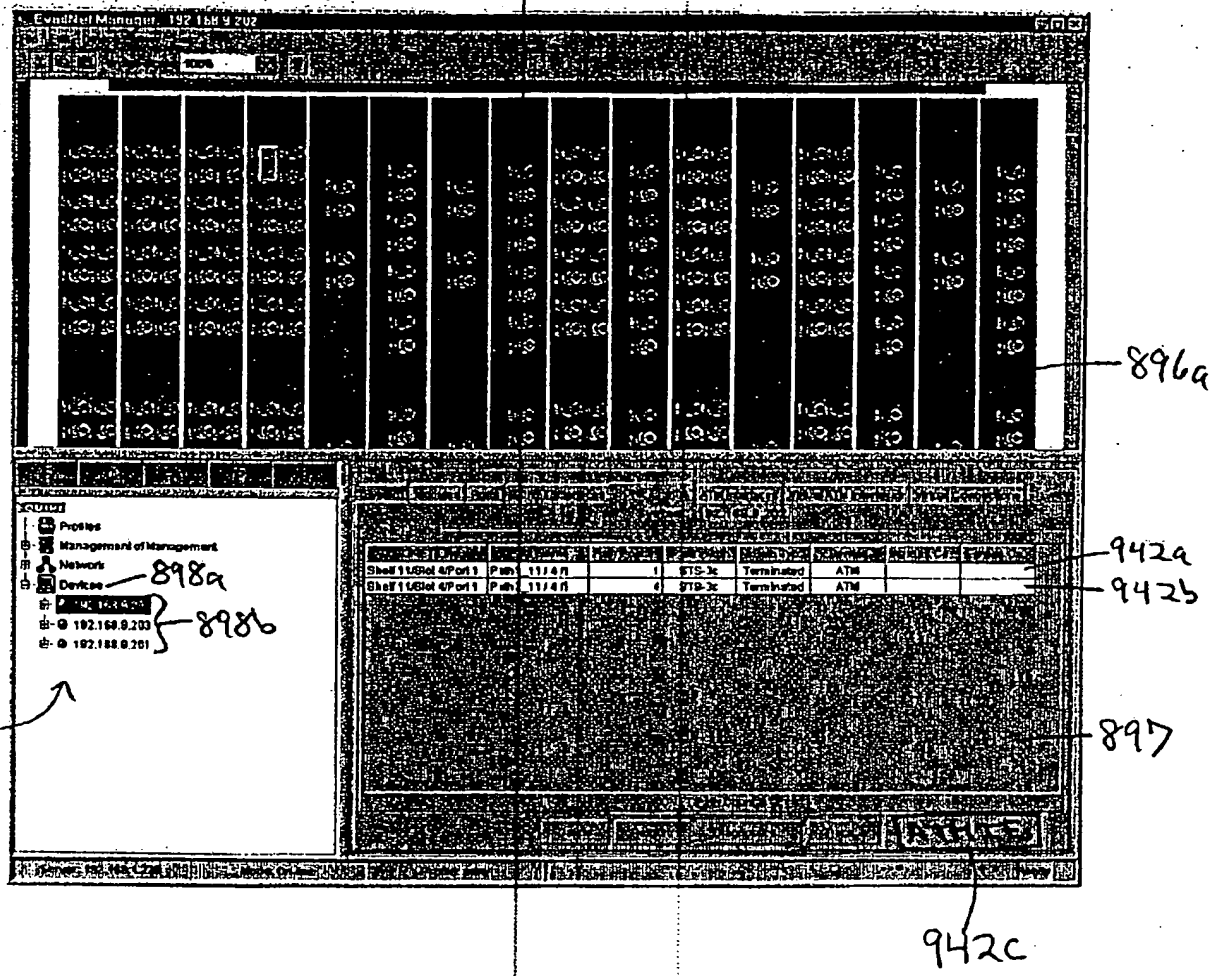


Fig. 5h

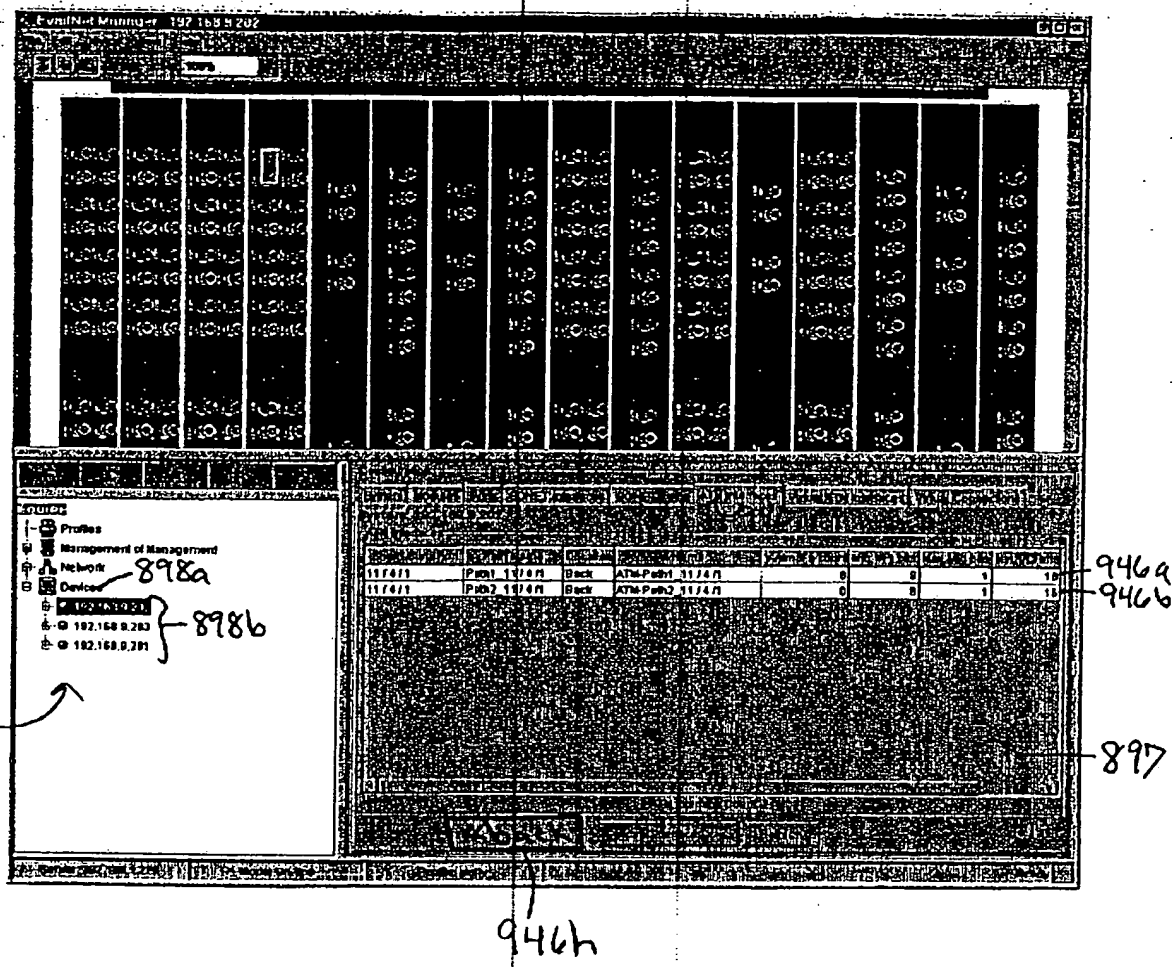


Fig. 5i

Fig. 5j

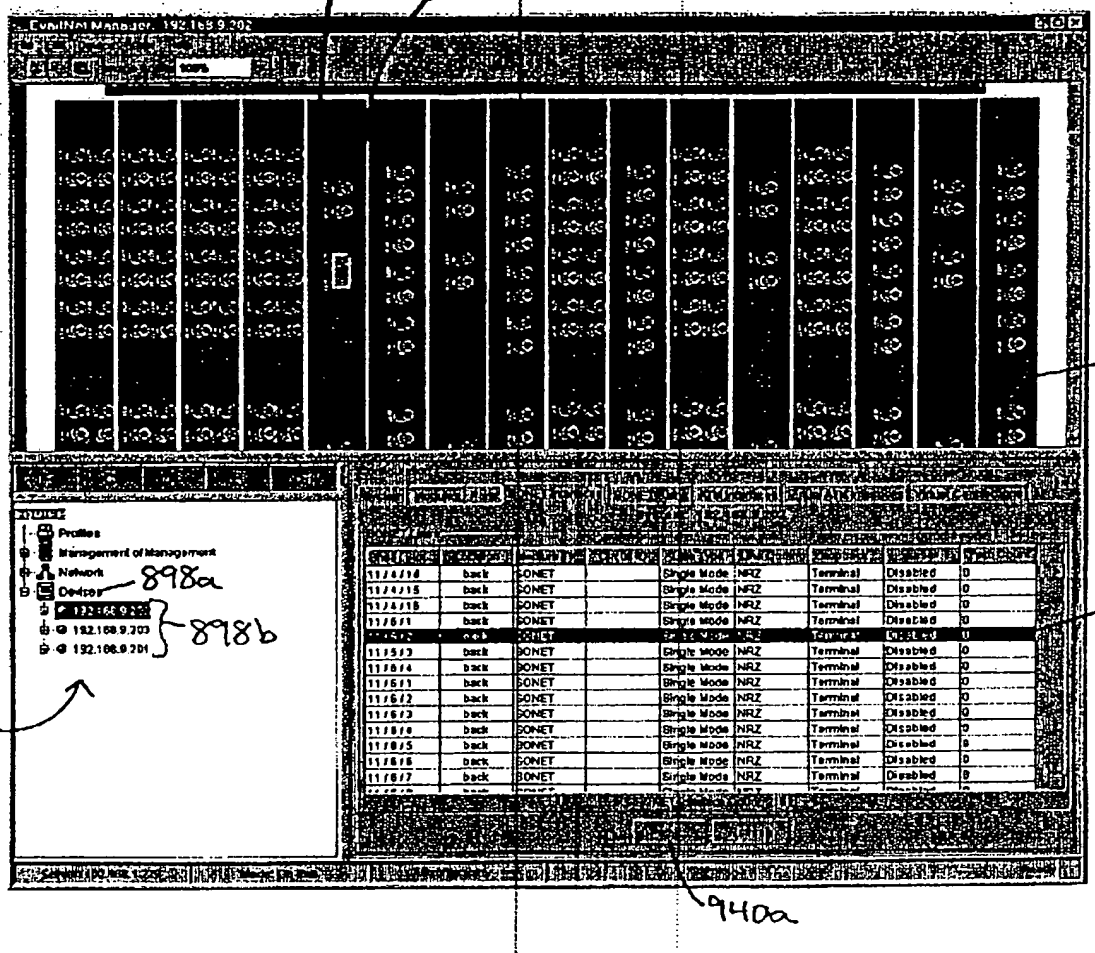

556d
941a
895
896a
898
898a
898b
949a
940a

Fig. 5K

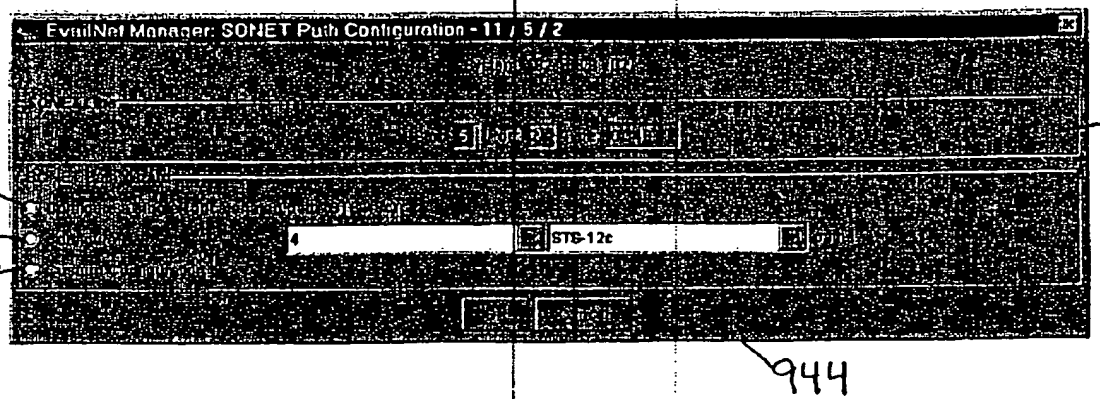

EvaliNet Manager: SONET Path Configuration - 11 / 5 / 2
944a
944b
944c
944d
STS-12c
944

Fig. 5l

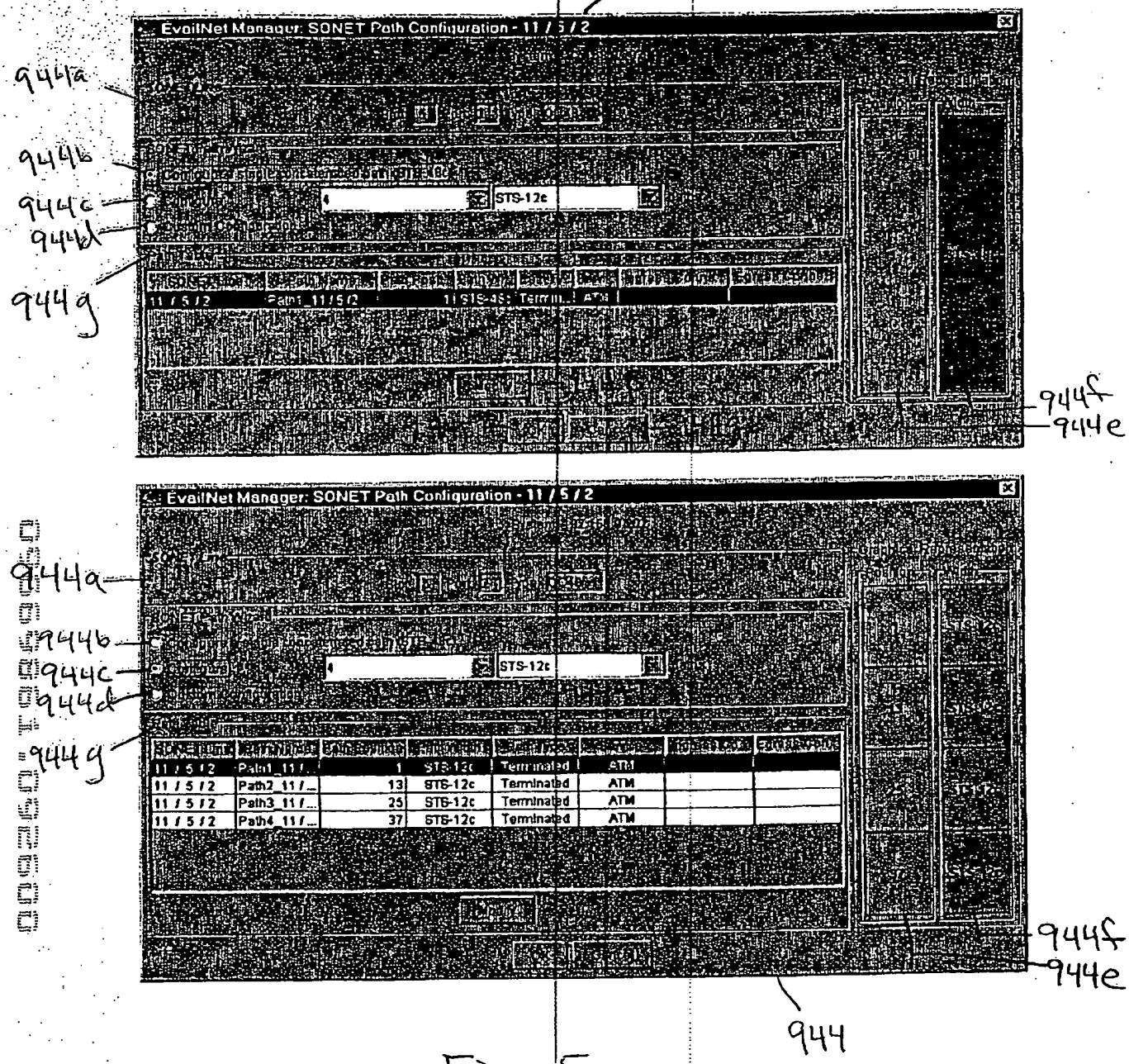

944
EvailNet Manager: SONET Path Configuration - 11 / 5 / 2
944a
944b
944c
944d
944g
944f
944e
STS-12c
11 / 5 / 2
Path1_11 / 5 / 2
Terminated
ATM
EvailNet Manager: SONET Path Configuration - 11 / 5 / 2
944a
944b
944c
944d
944g
944f
944e
STS-12c
11 / 5 / 2 Path1_11 / ... 1 STS-12c Terminated ATM
11 / 5 / 2 Path2_11 / ... 13 STS-12c Terminated ATM
11 / 5 / 2 Path3_11 / ... 25 STS-12c Terminated ATM
11 / 5 / 2 Path4_11 / ... 37 STS-12c Terminated ATM
944

Fig. 5m

Fig. 5n

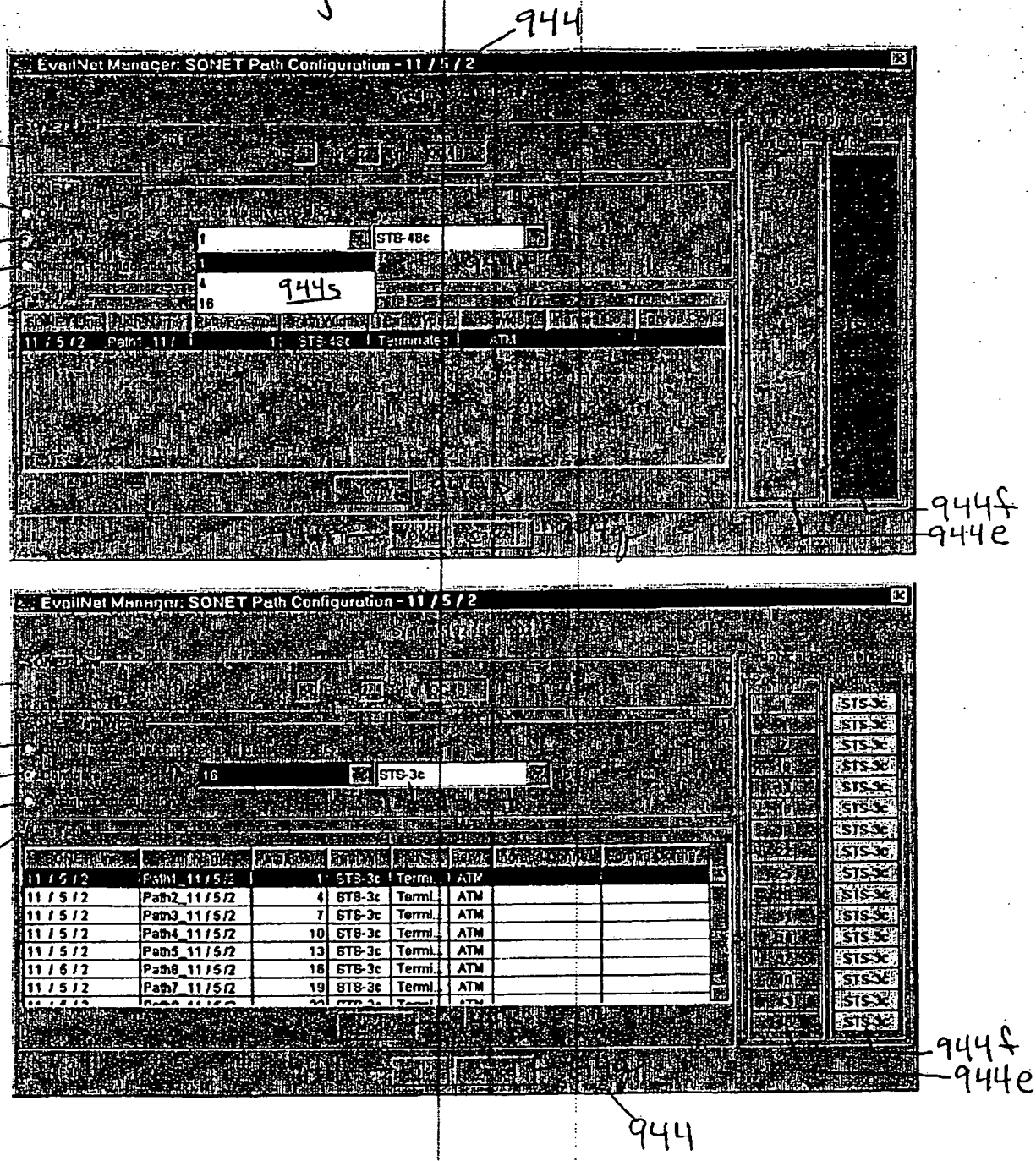

944
EvaliNet Manager: SONET Path Configuration - 11 / 5 / 2
944a
944b
944c
944d
944g
STB-48c
16
9445
944f
944e
944
EvaliNet Manager: SONET Path Configuration - 11 / 5 / 2
944a
944b
944c
944d
944g
16
STS-3c
11 / 5 / 2 Path1_11 / 5 / 2 1 STS-3c Termi... ATM
11 / 5 / 2 Path2_11 / 5 / 2 4 STS-3c Termi... ATM
11 / 5 / 2 Path3_11 / 5 / 2 7 STS-3c Termi... ATM
11 / 5 / 2 Path4_11 / 5 / 2 10 STS-3c Termi... ATM
11 / 5 / 2 Path5_11 / 5 / 2 13 STS-3c Termi... ATM
11 / 6 / 2 Path6_11 / 5 / 2 16 STS-3c Termi... ATM
11 / 5 / 2 Path7_11 / 5 / 2 19 STS-3c Termi... ATM
944f
944e
944

Fig. 5o

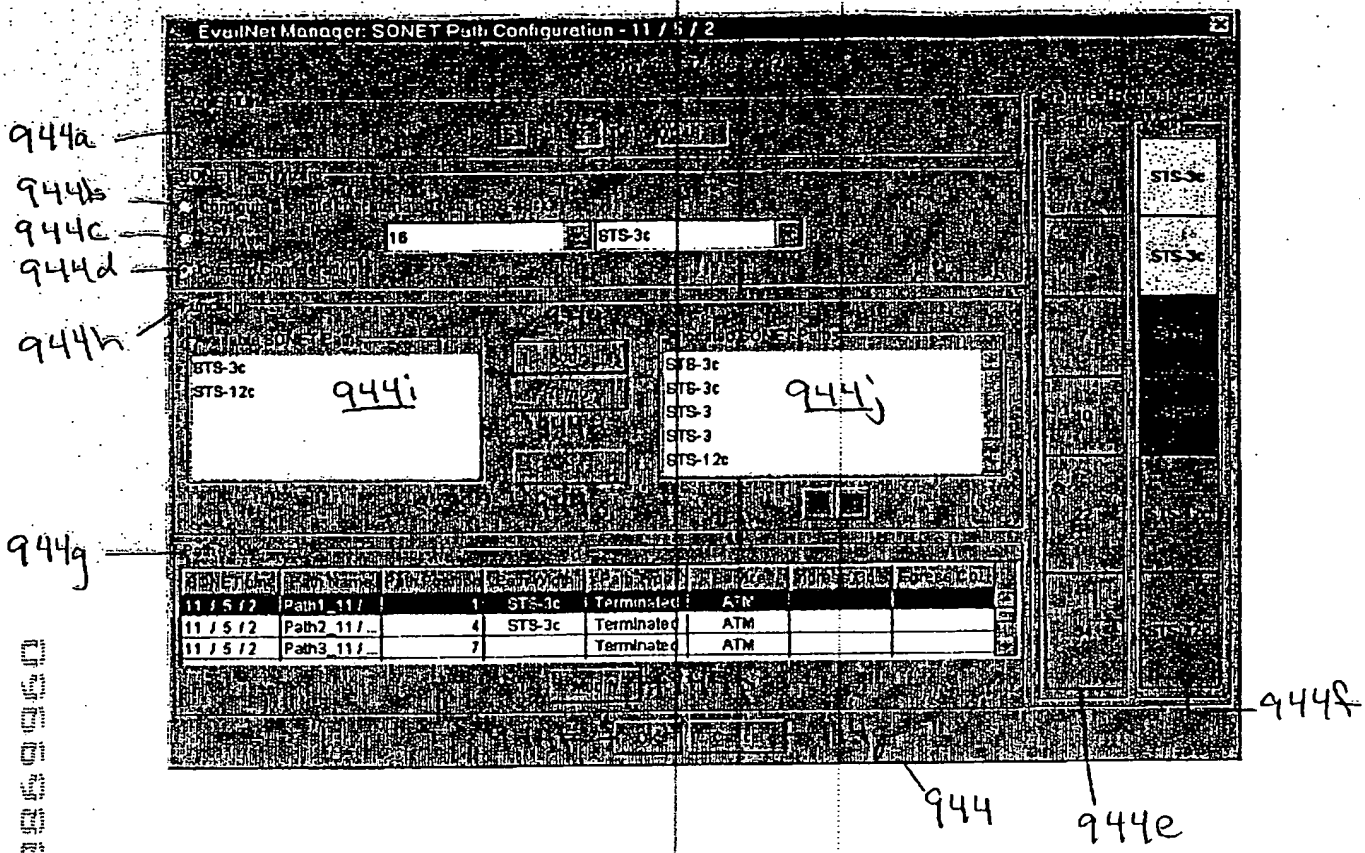

EvanNet Manager: SONET Path Configuration - 11 / 5 / 2
944a
944b
944c
944d
944h
944i
944j
944g
944f
944
944e
STS-3c
STS-12c
STS-3
Path1_11 /
Path2_11 /...
Path3_11 /...
Terminated
ATM

Fig. 5P

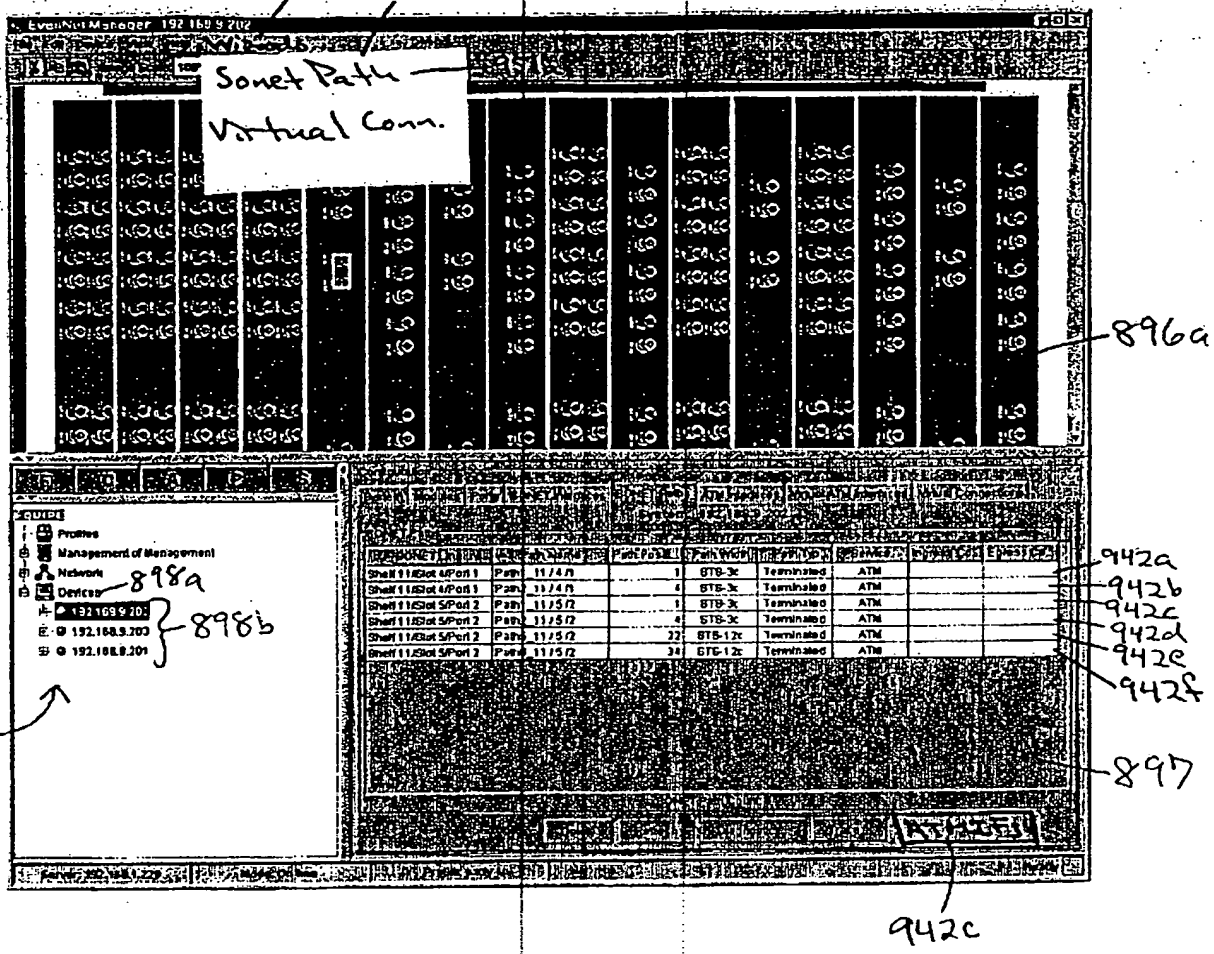

895
951
957b
Sonet Path
Virtual Conn.
896a
898a
898b
898
942a
942b
942c
942d
942e
942f
897
942c

Fig 5g

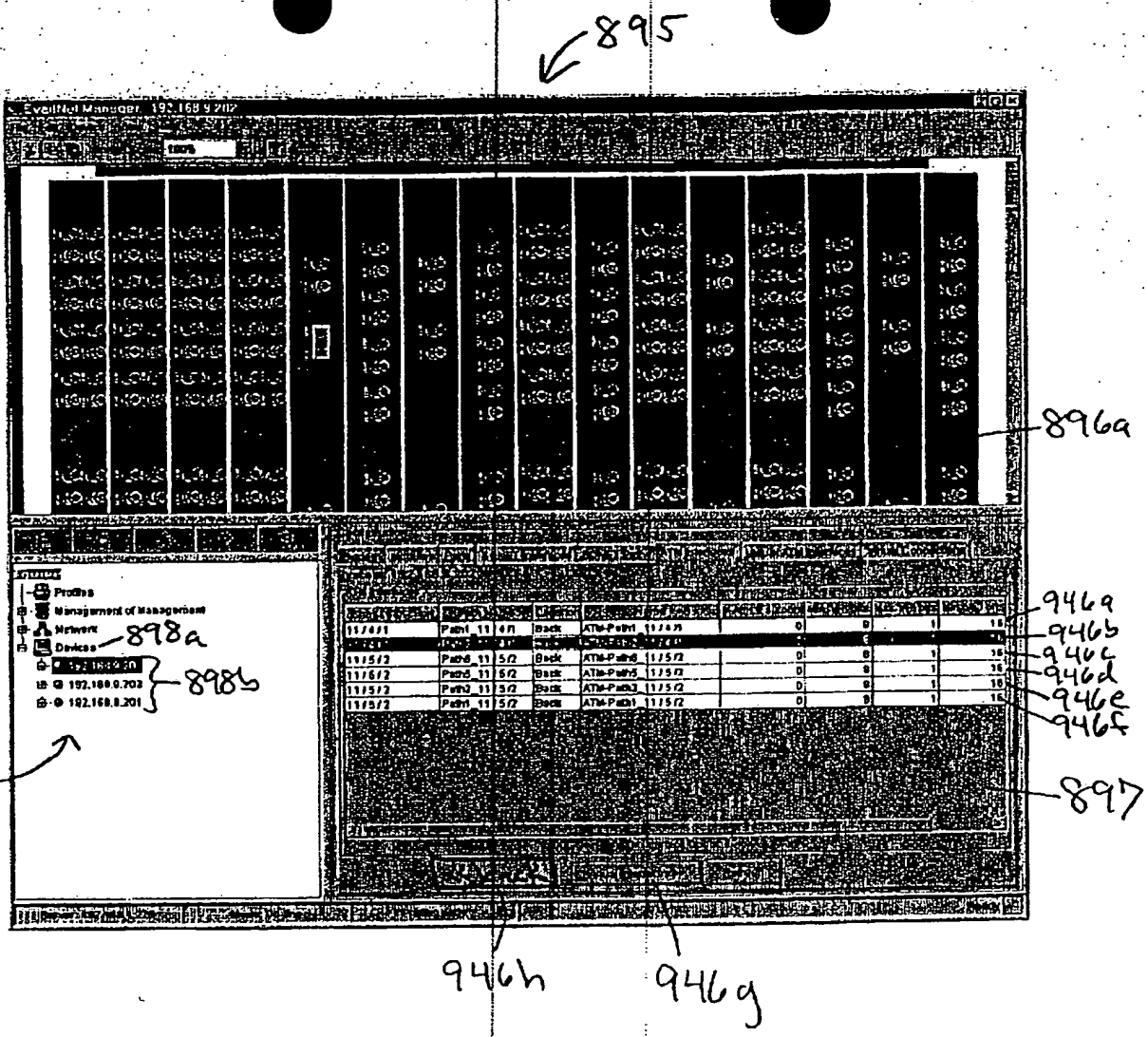

895
896a
898a
898b
898
946a
946b
946c
946d
946e
946f
897
946h
946g

Fig. 5F

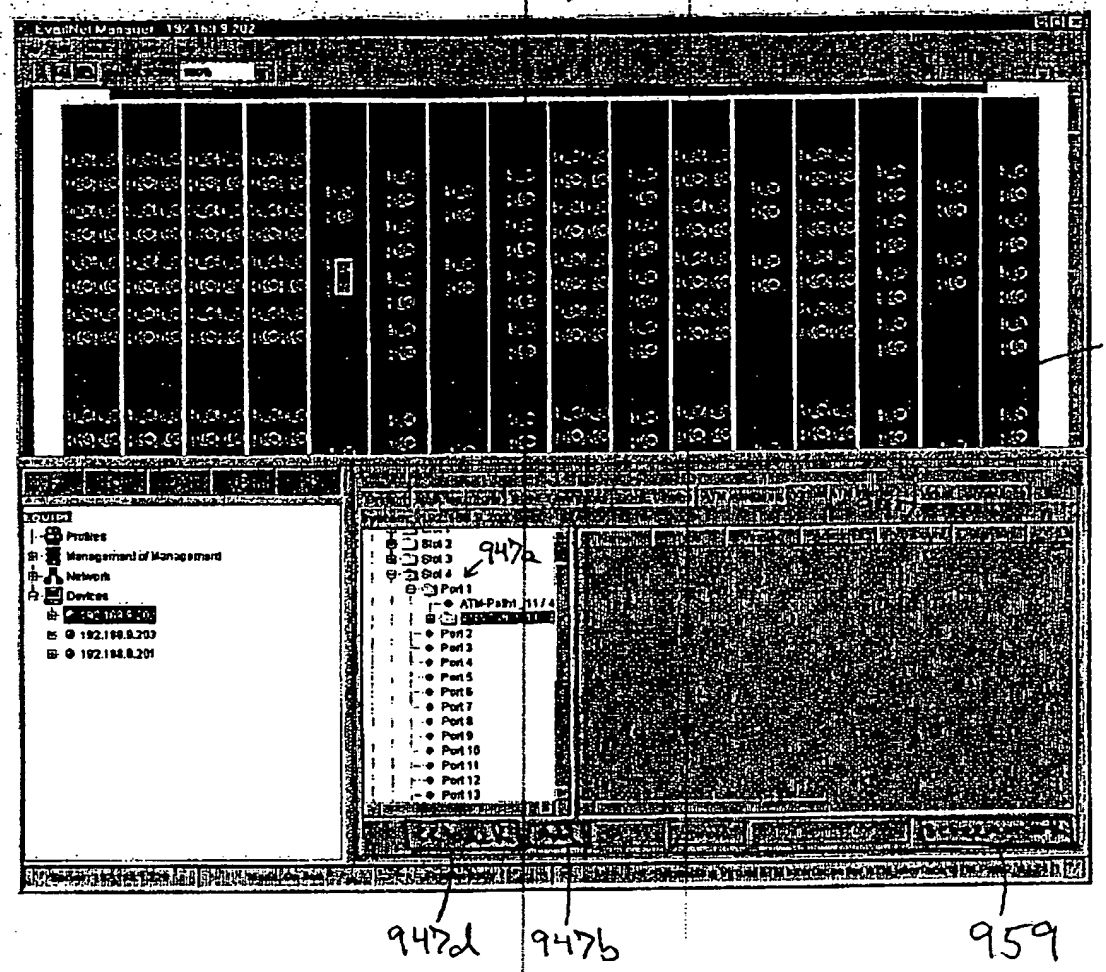
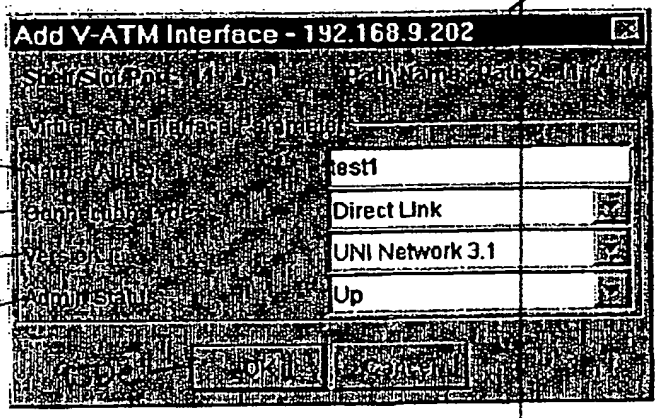


Fig. 5s

Fig. 5t



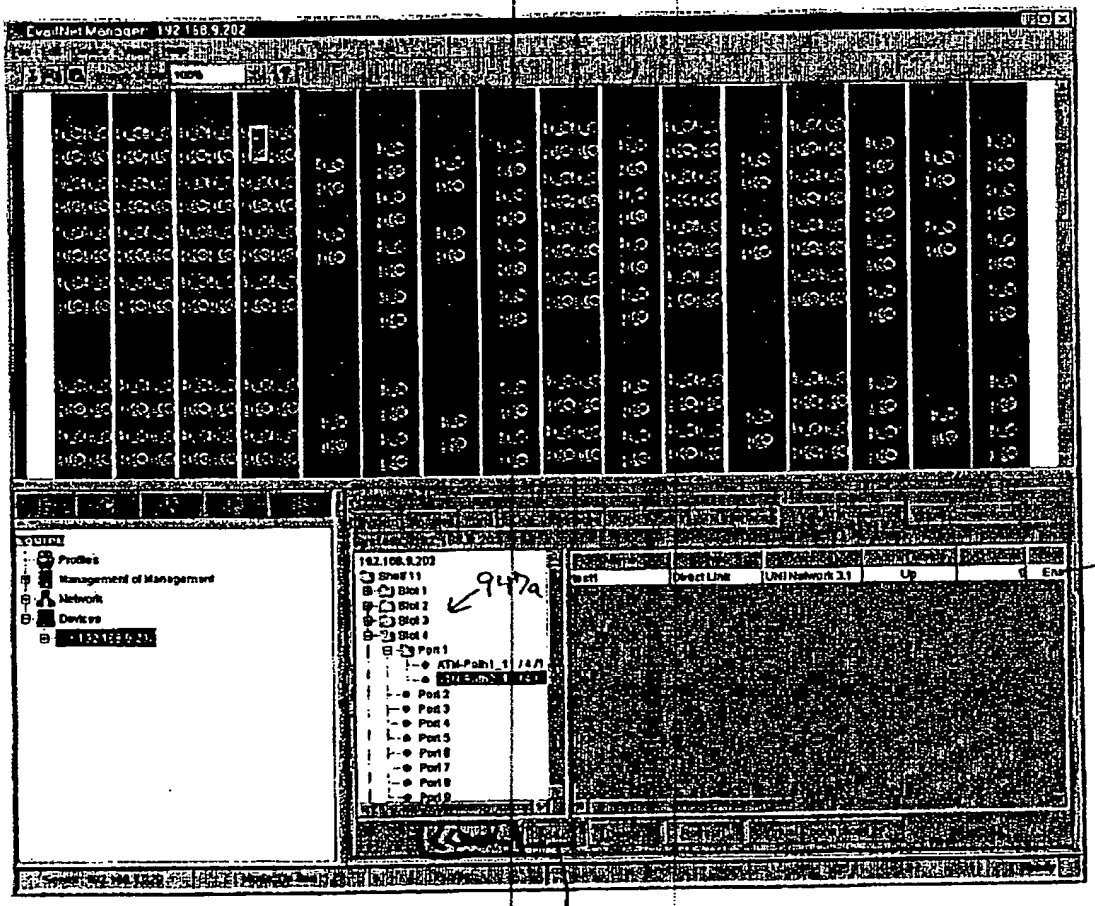


Fig. 5u

05050504.050500

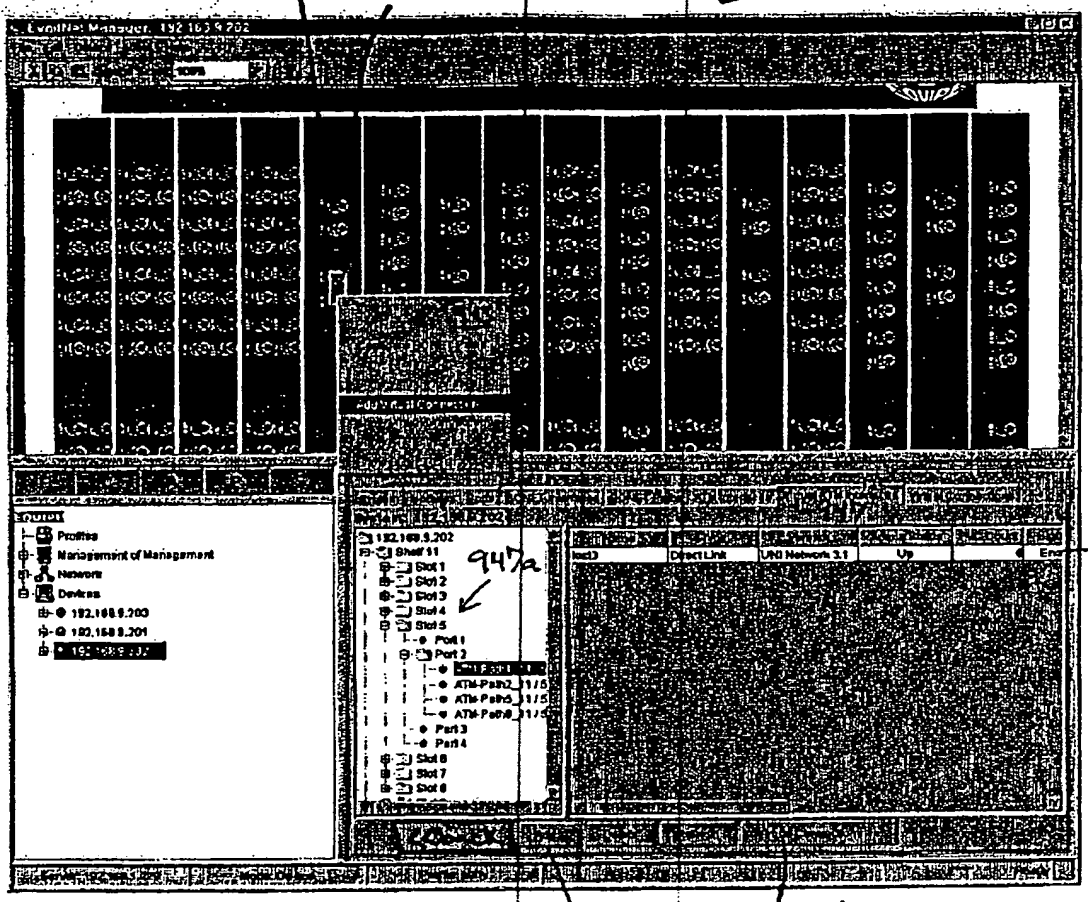


Fig. 5v

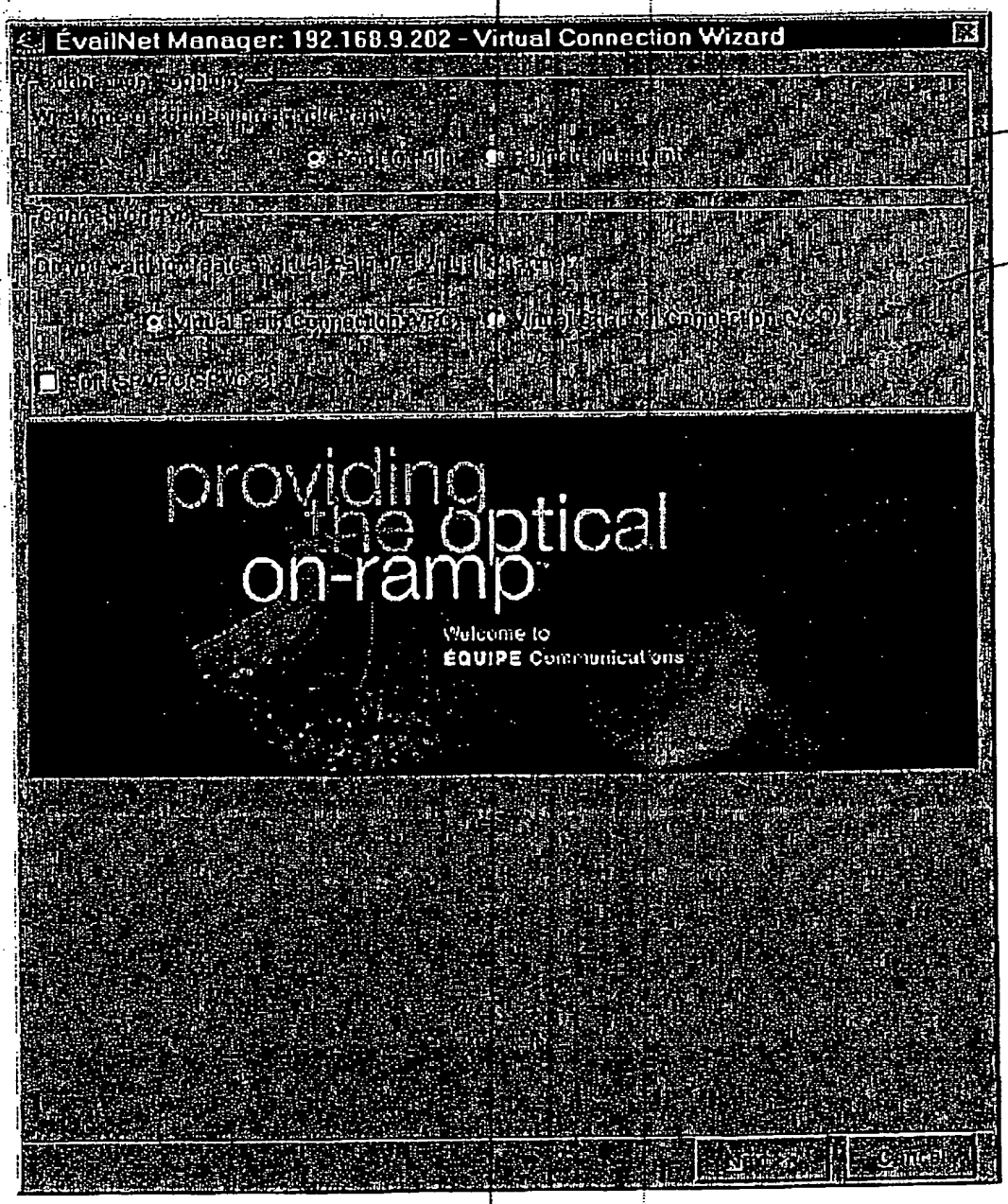

952
EvailNet Manager: 192.168.9.202 - Virtual Connection Wizard
952a
952b
providing the optical on-ramp
Welcome to
EQUIPE Communications

Fig. 5w

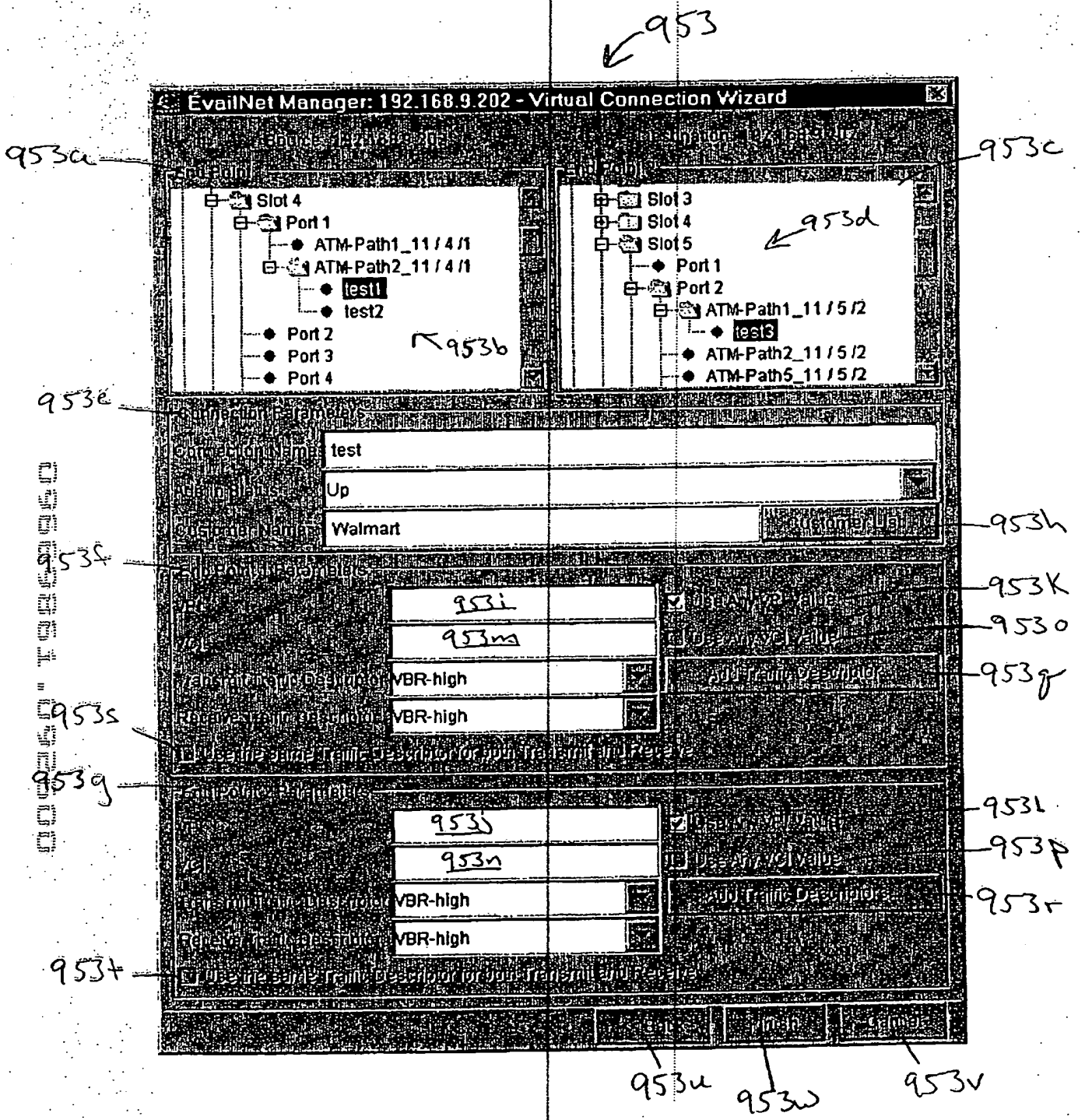

953
EvailNet Manager: 192.168.9.202 - Virtual Connection Wizard
953a
953c
Slot 4
Port 1
ATM-Path1_11 / 4 /1
ATM-Path2_11 / 4 /1
test1
test2
Port 2
Port 3
Port 4
953b
953d
Slot 3
Slot 4
Slot 5
Port 1
Port 2
ATM-Path1_11 / 5 /2
test3
ATM-Path2_11 / 5 /2
ATM-Path5_11 / 5 /2
953e
Connection Parameters
Connection Name:
test
Admin Status:
Up
Customer Name:
Walmart
953h
953f
Traffic Descriptor Parameters
953i
953m
VBR-high
VBR-high
953K
953o
953g
953s
953g
953j
953n
VBR-high
VBR-high
953l
953p
953r
953t
953u
953w
953v

Fig. 5x

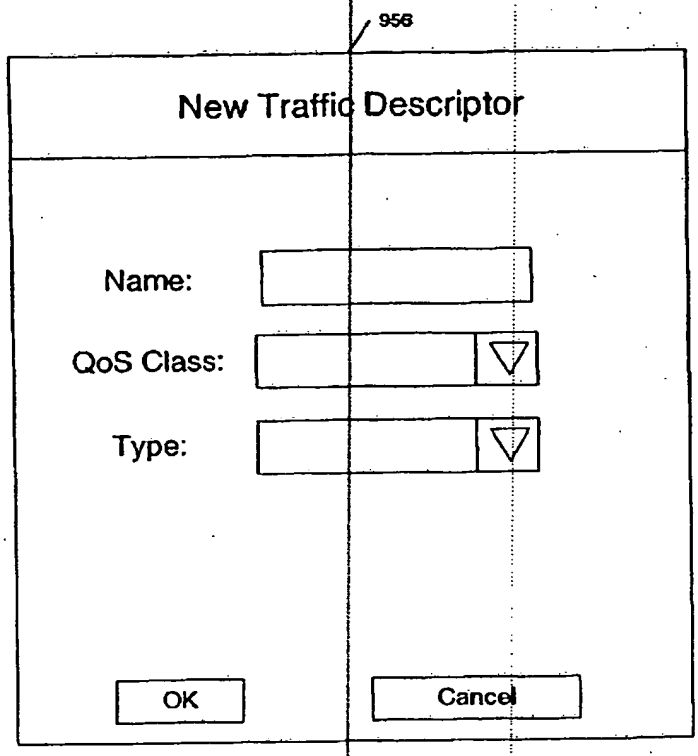


Fig. 5Y

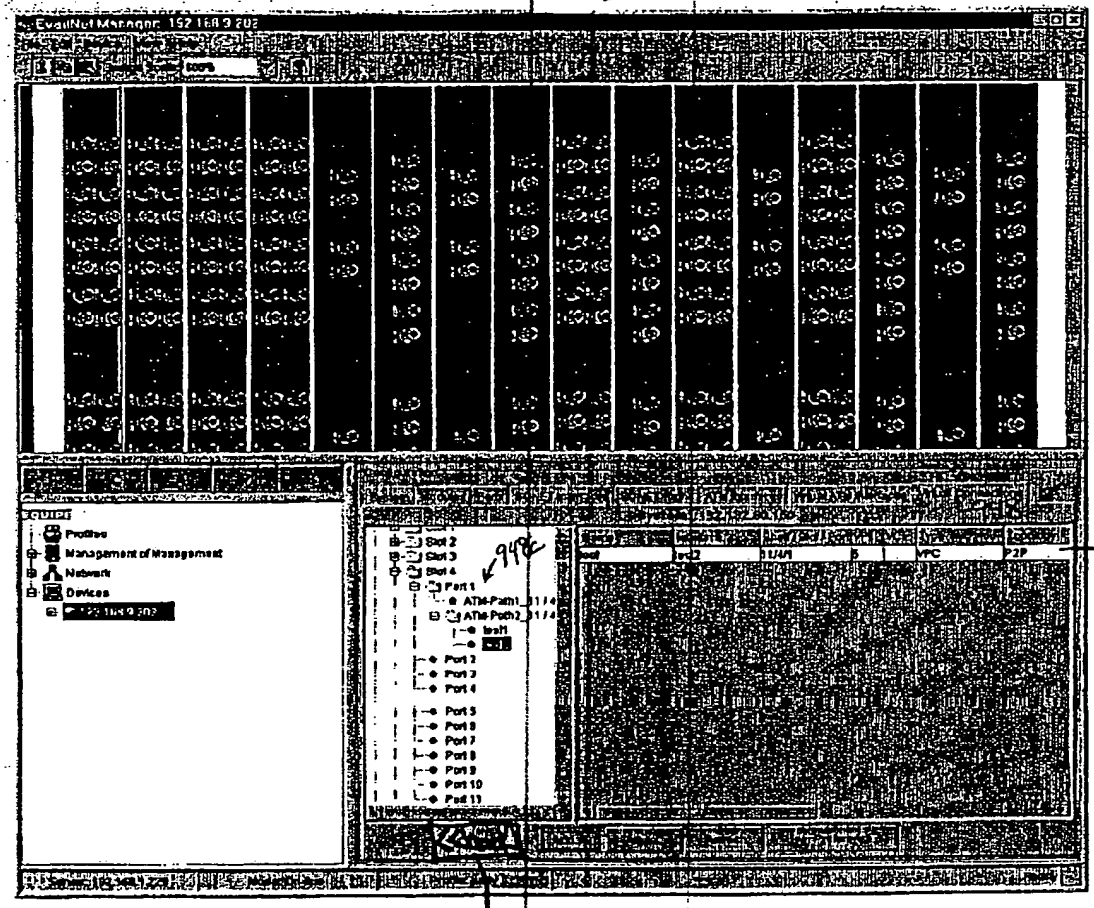


Fig. 57

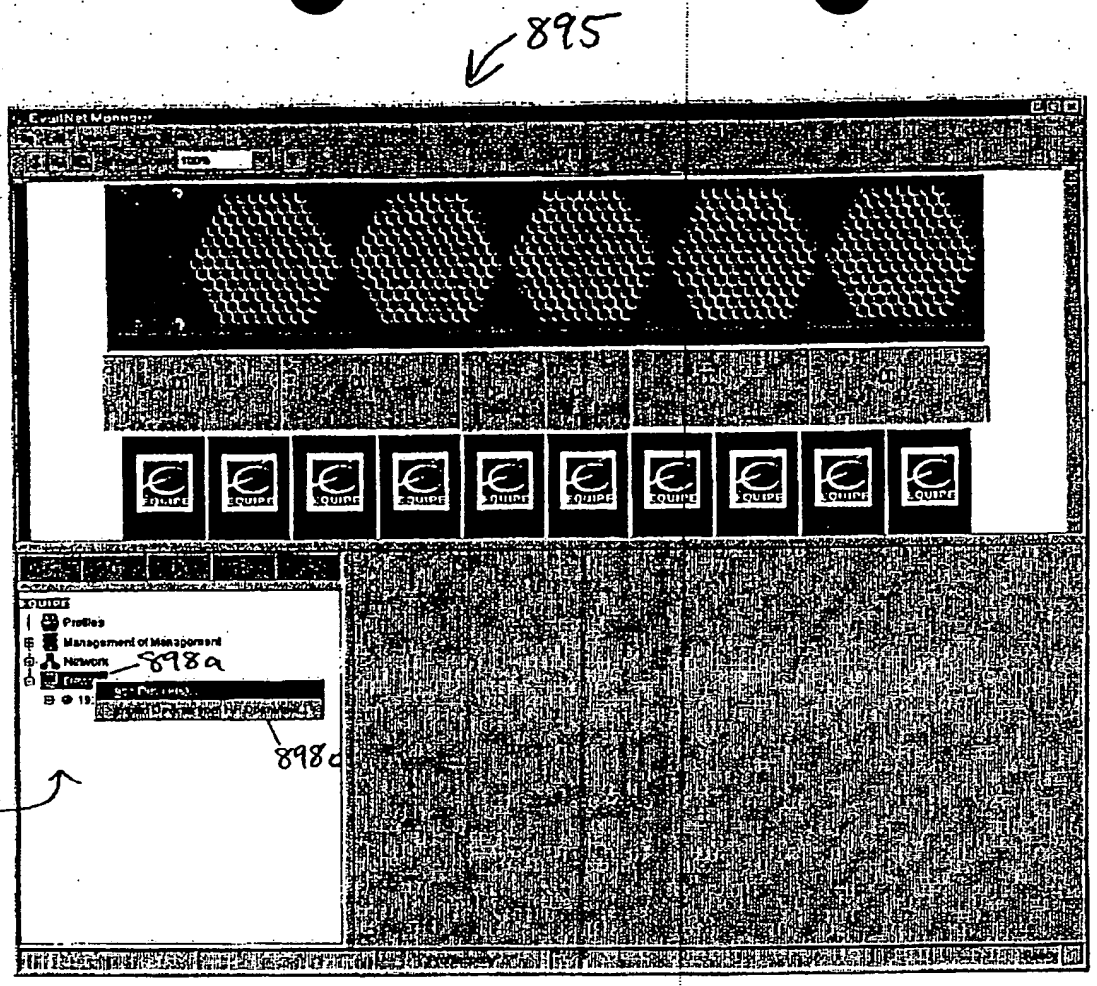


Fig. 6a

Fig. 6b

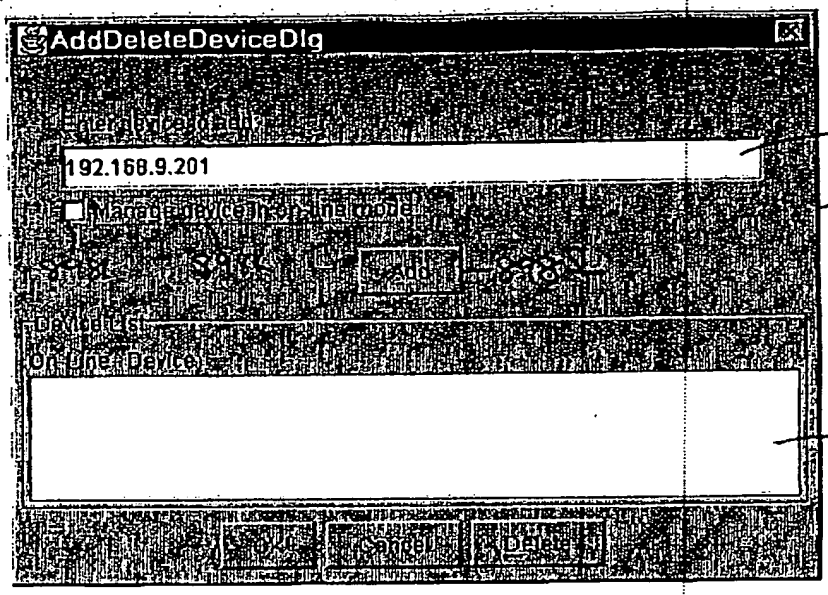
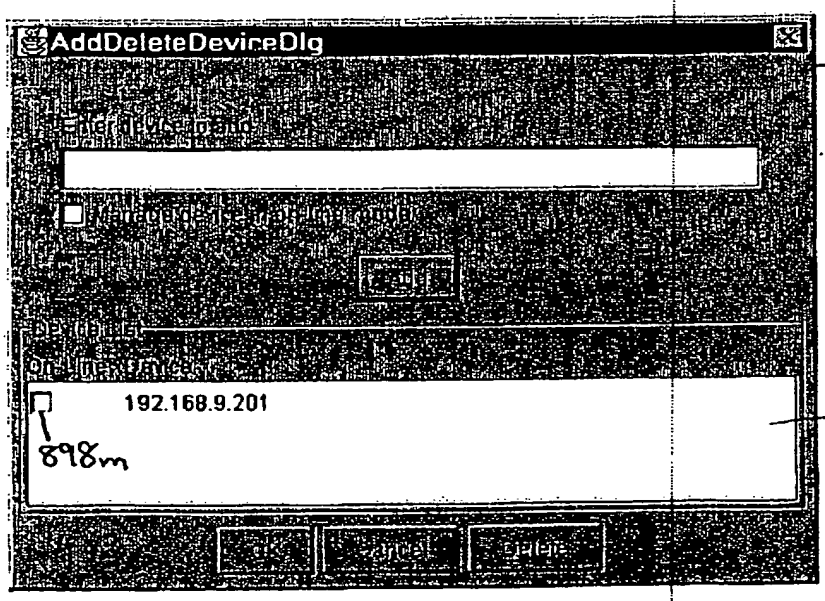

AddDeleteDeviceDlg
192.168.9.201
898e
898d
898g

Fig. 6c


AddDeleteDeviceDlg
898d
192.168.9.201
898m
898g

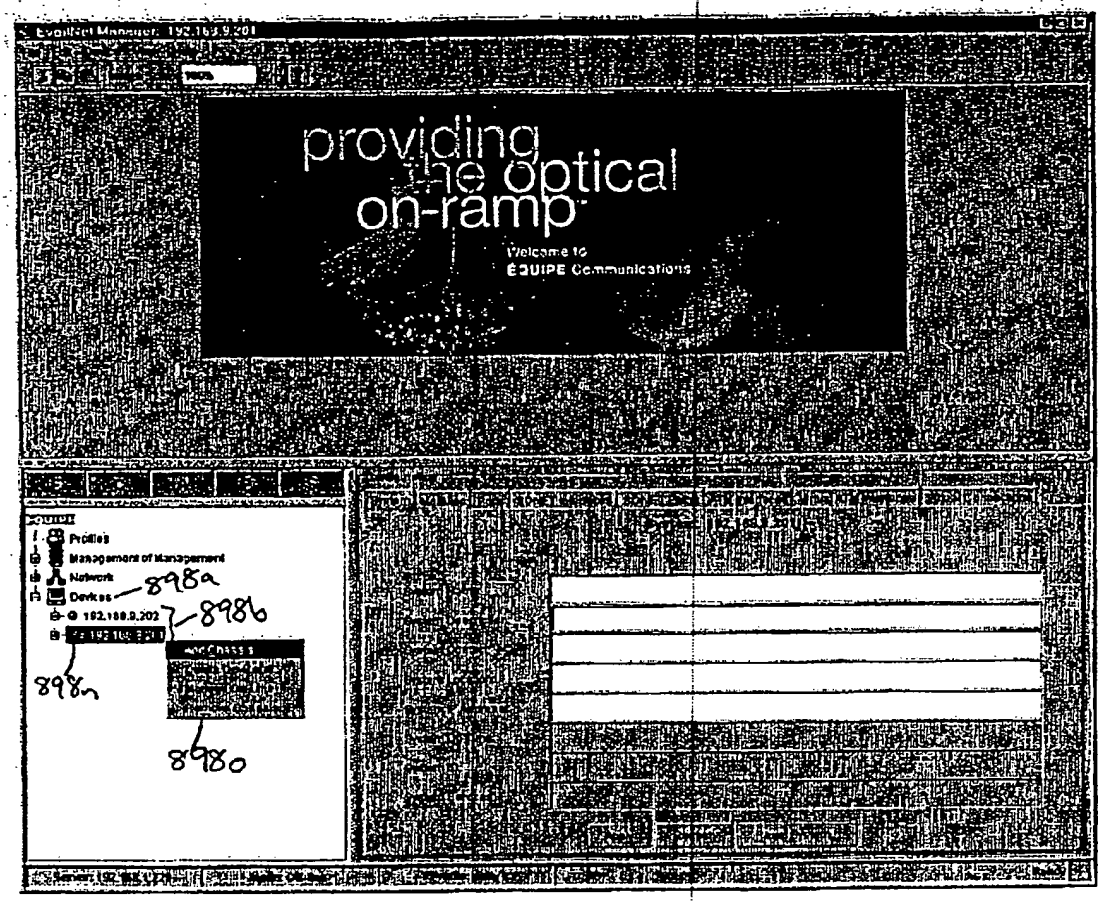

providing the optical on-ramp
Welcome to
EQUIPE Communications
Profiles
Management of Management
Network
Devices
898a
8986
898n
8980

Fig. 6d

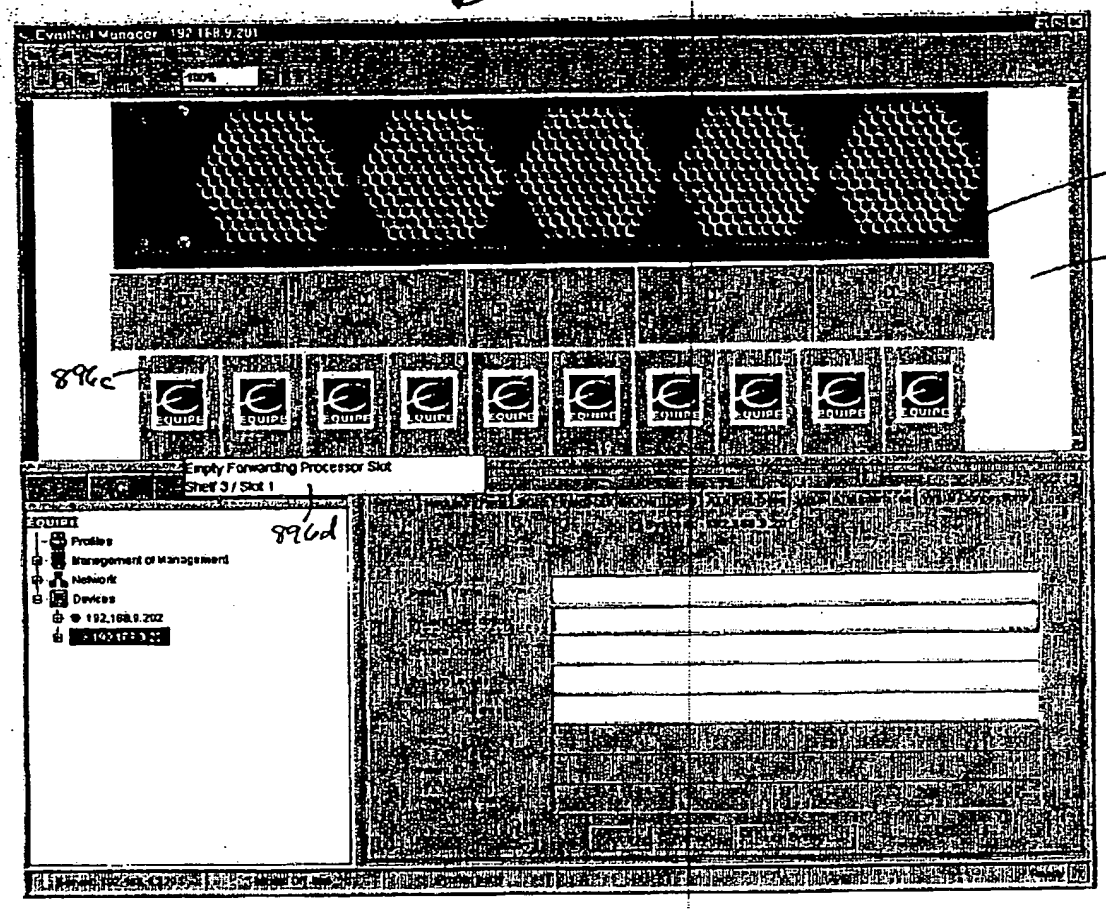

895
896a
896b
896c
896d
Empty Forwarding Processor Slot
Shelf 3 / Slot 1
Profiles
Management of Management
Network
Devices

Fig. 6e

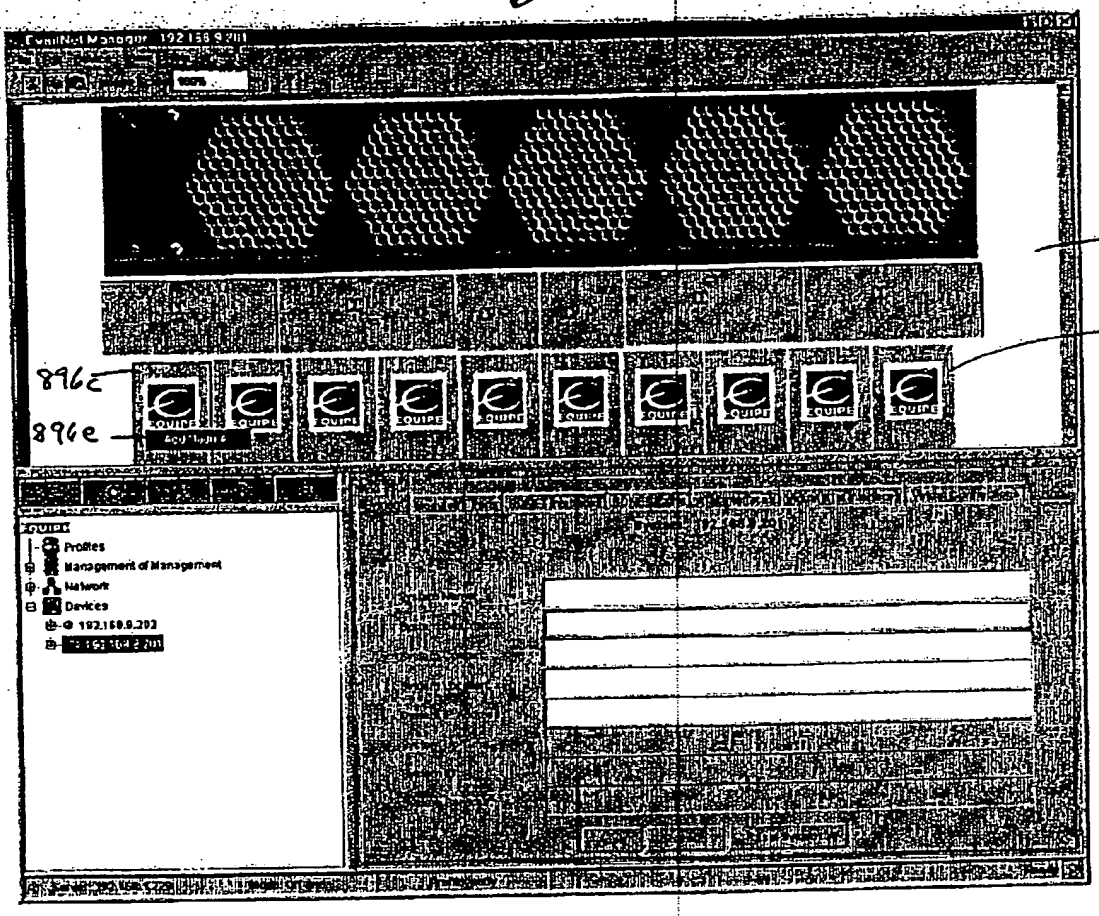

895
896b
896a
896c
896e
Profiles
Management of Management
Network
Devices

Fig. 6f

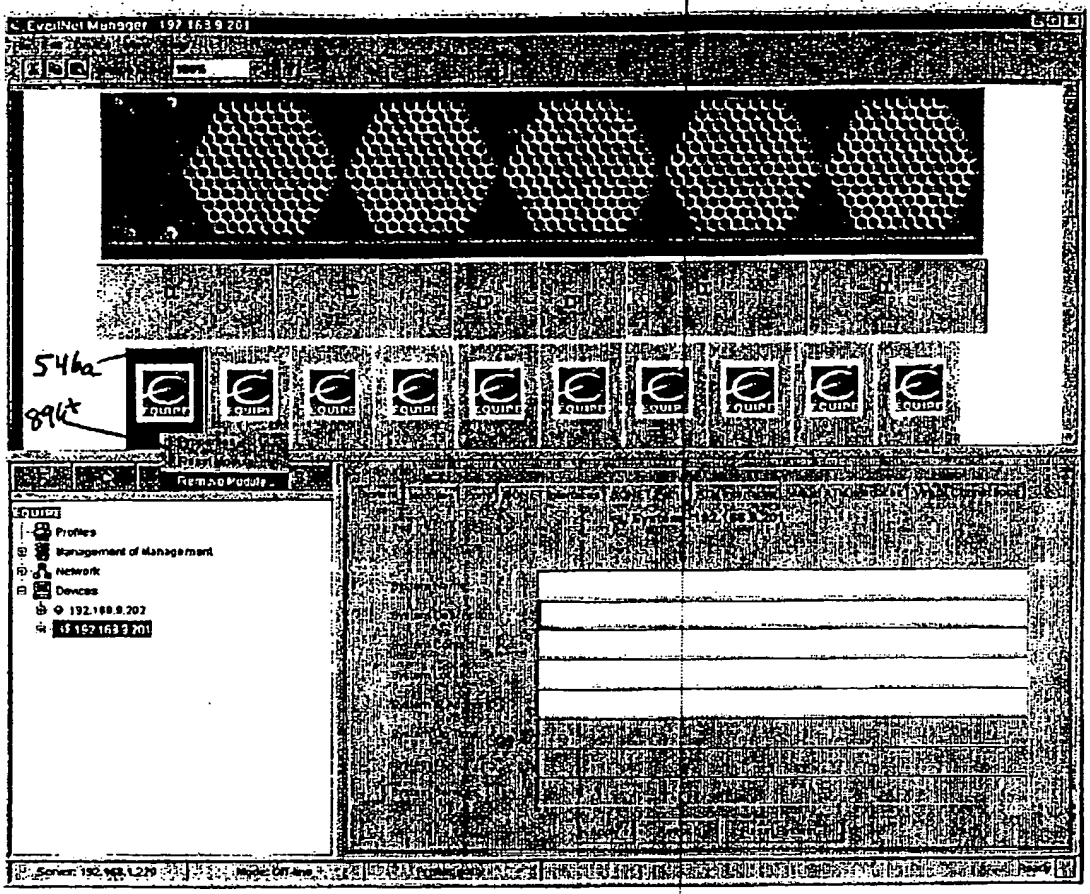

895
546a
894
Profiles
Management of Management
Network
Devices

Fig. 6g

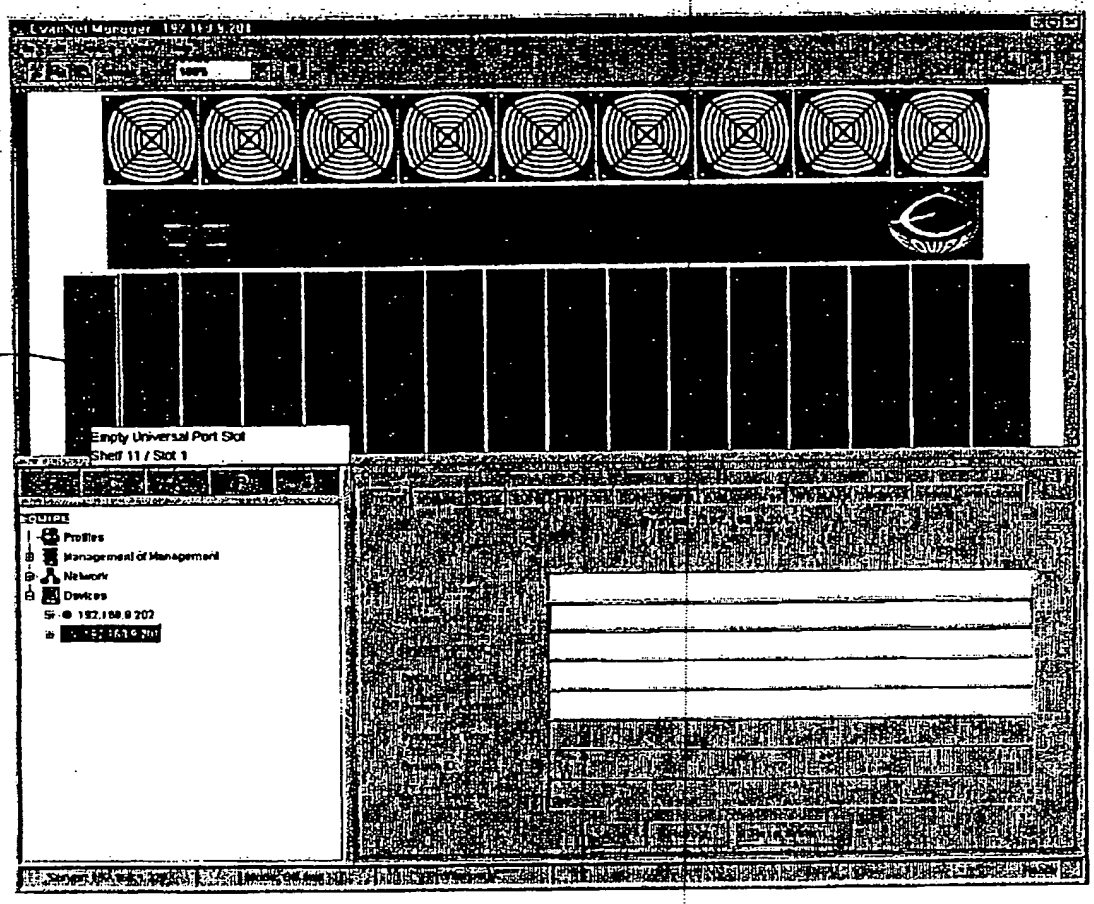
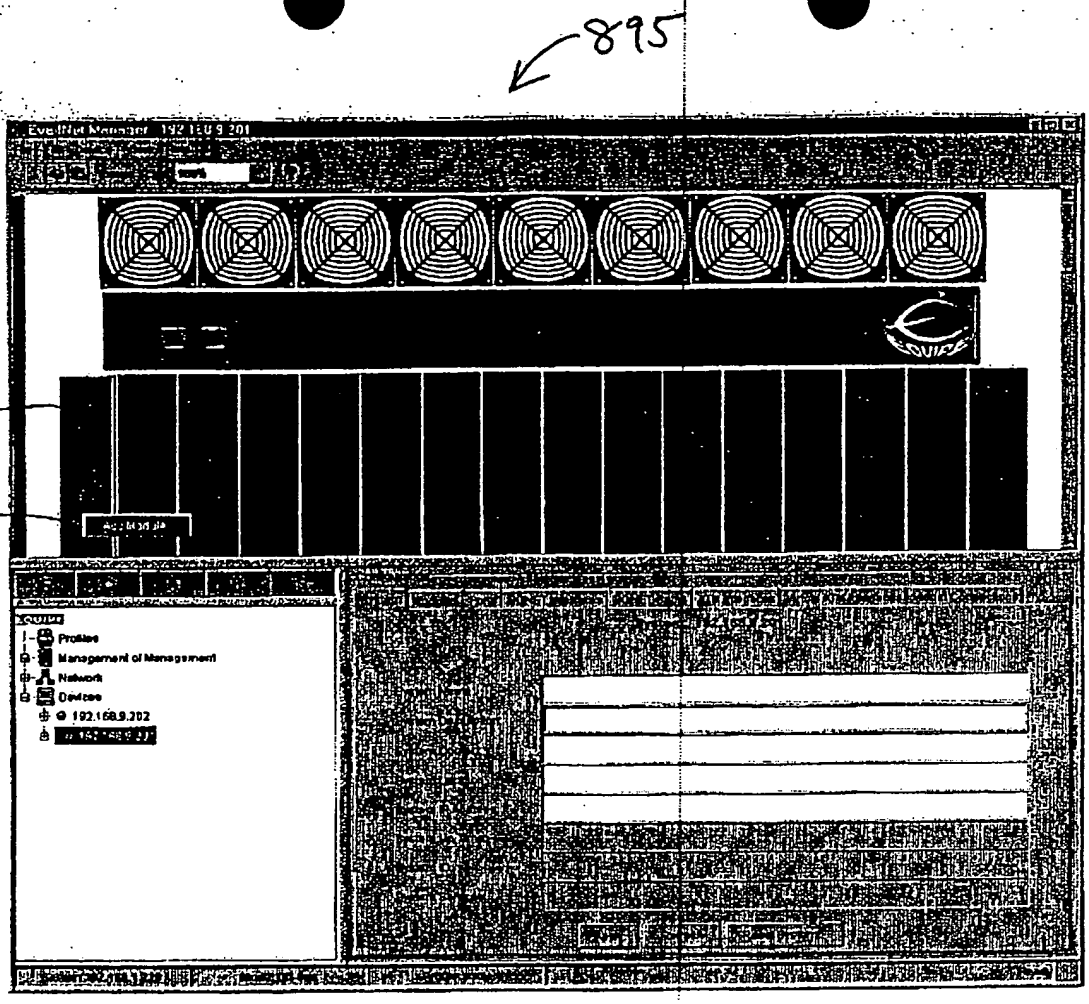


Fig. 6h

09609300.1 - 09609300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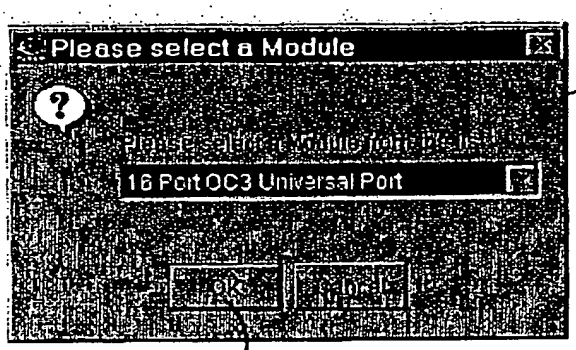
896f
896g
Profiles
Management of Management
Network
Devices
192.168.9.202

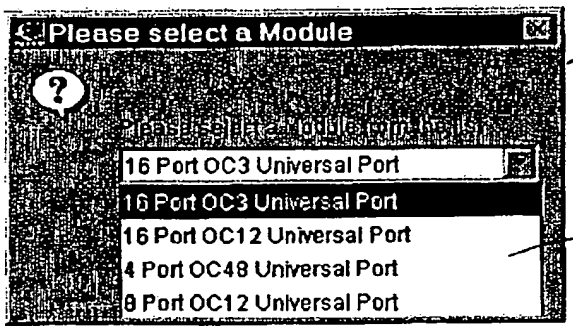
Fig. 6i

Fig. 6J



896h

896j



896h

896i

Fig. 6K

Document 3 - 020000

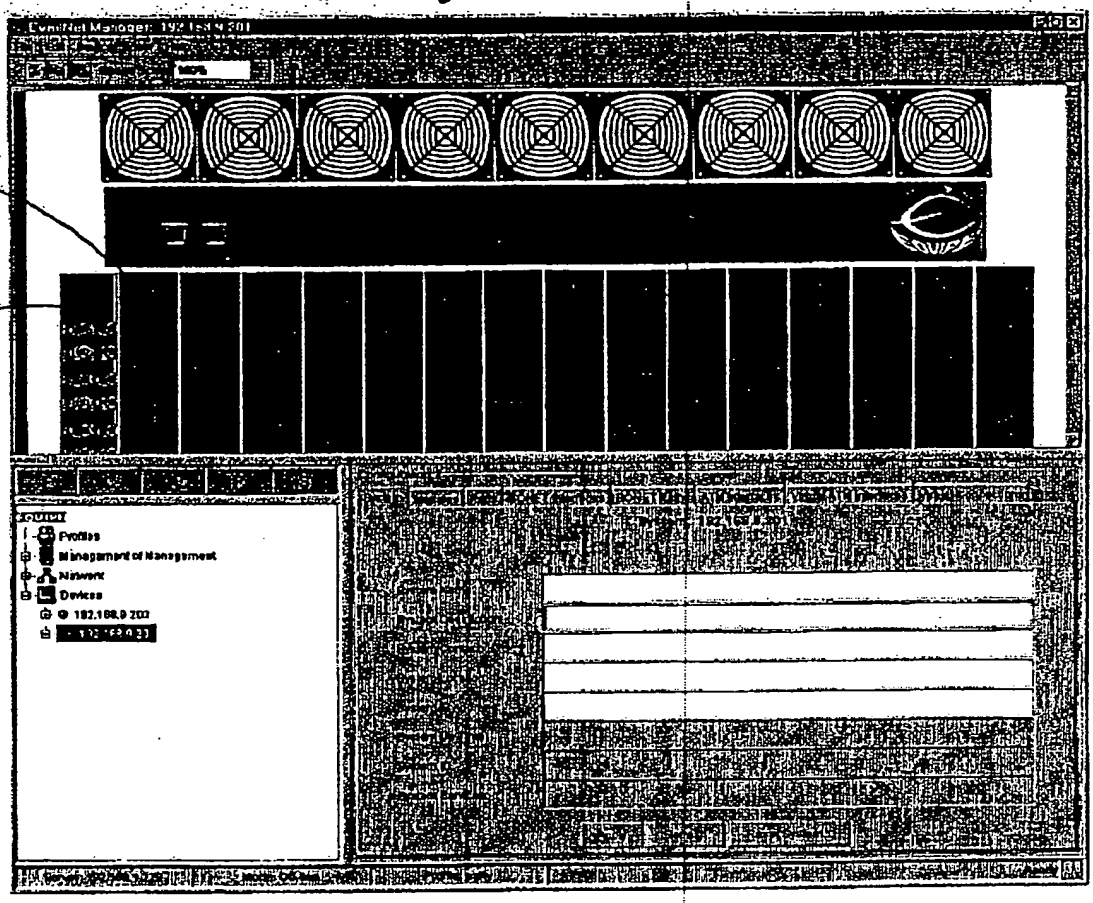
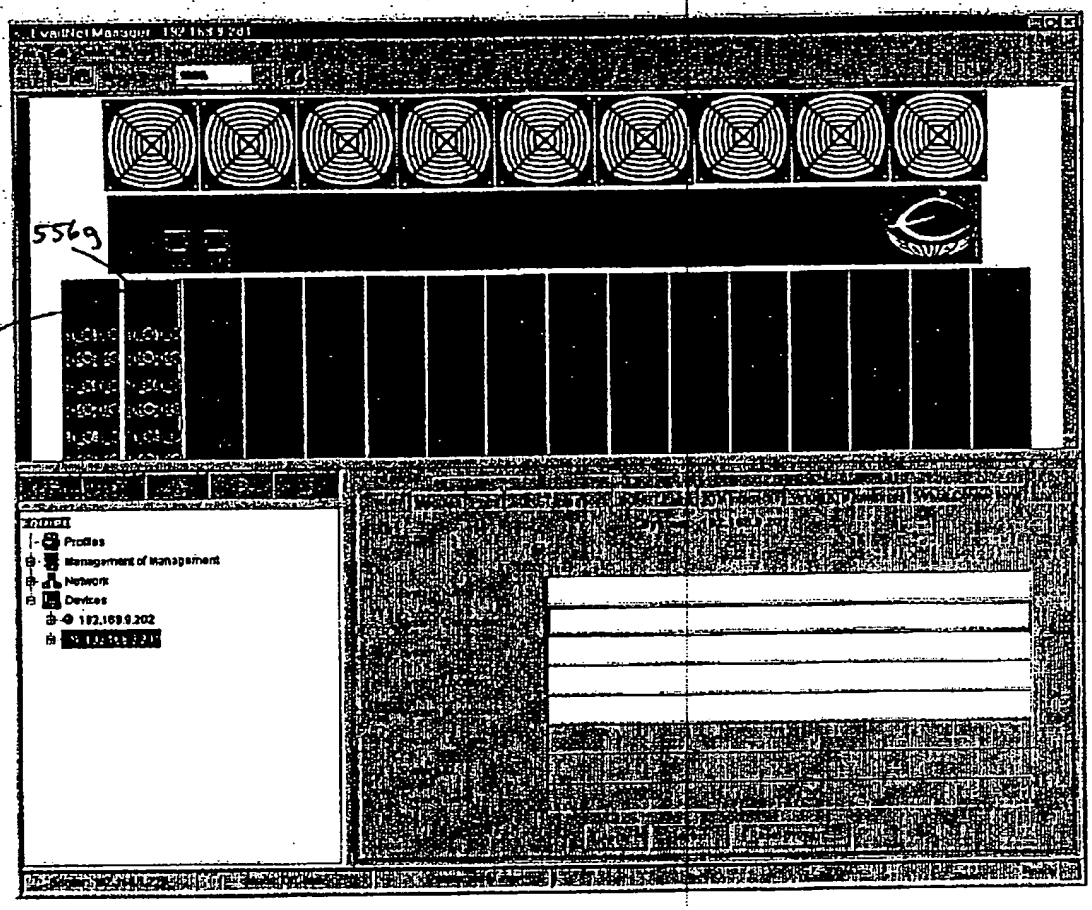


Fig. 6L

09509504 - 050800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Devices
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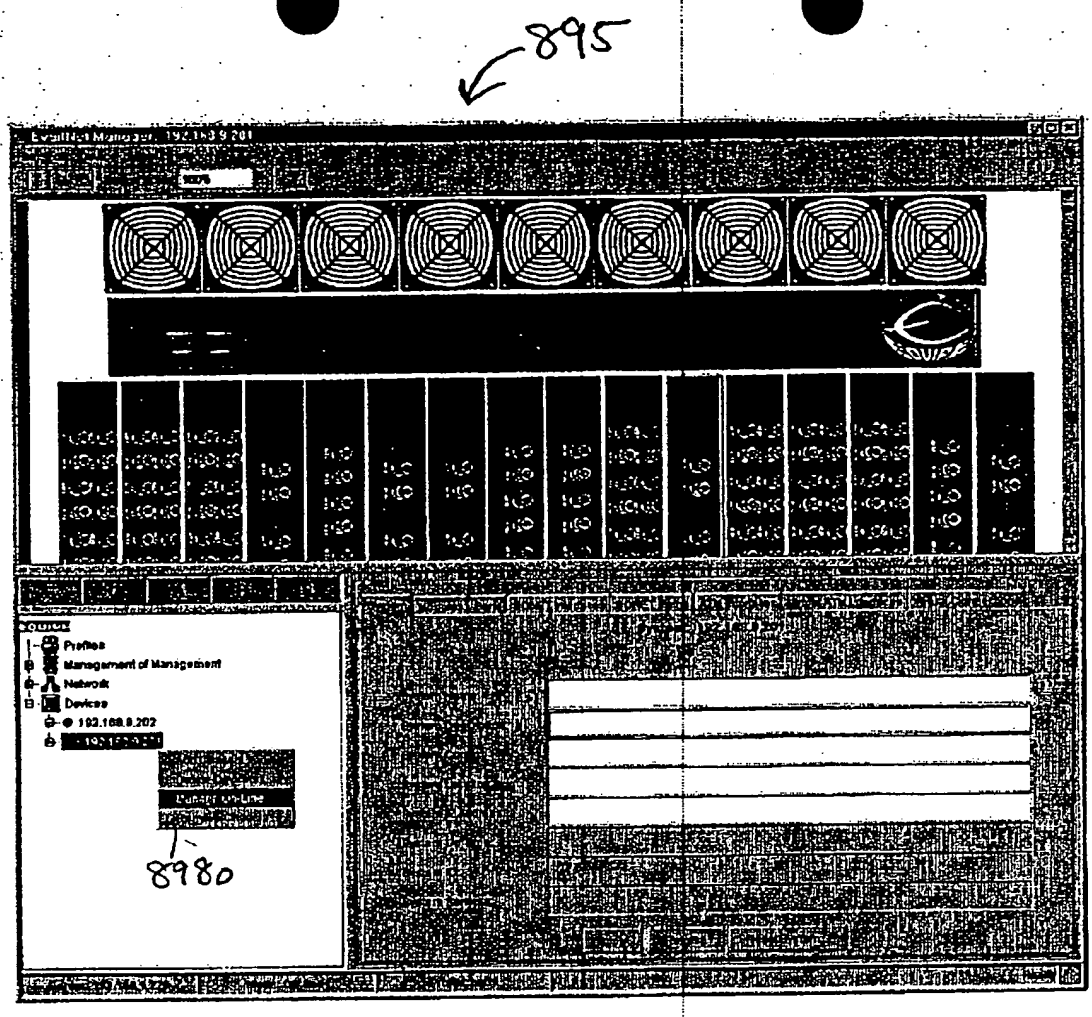
Fig.6m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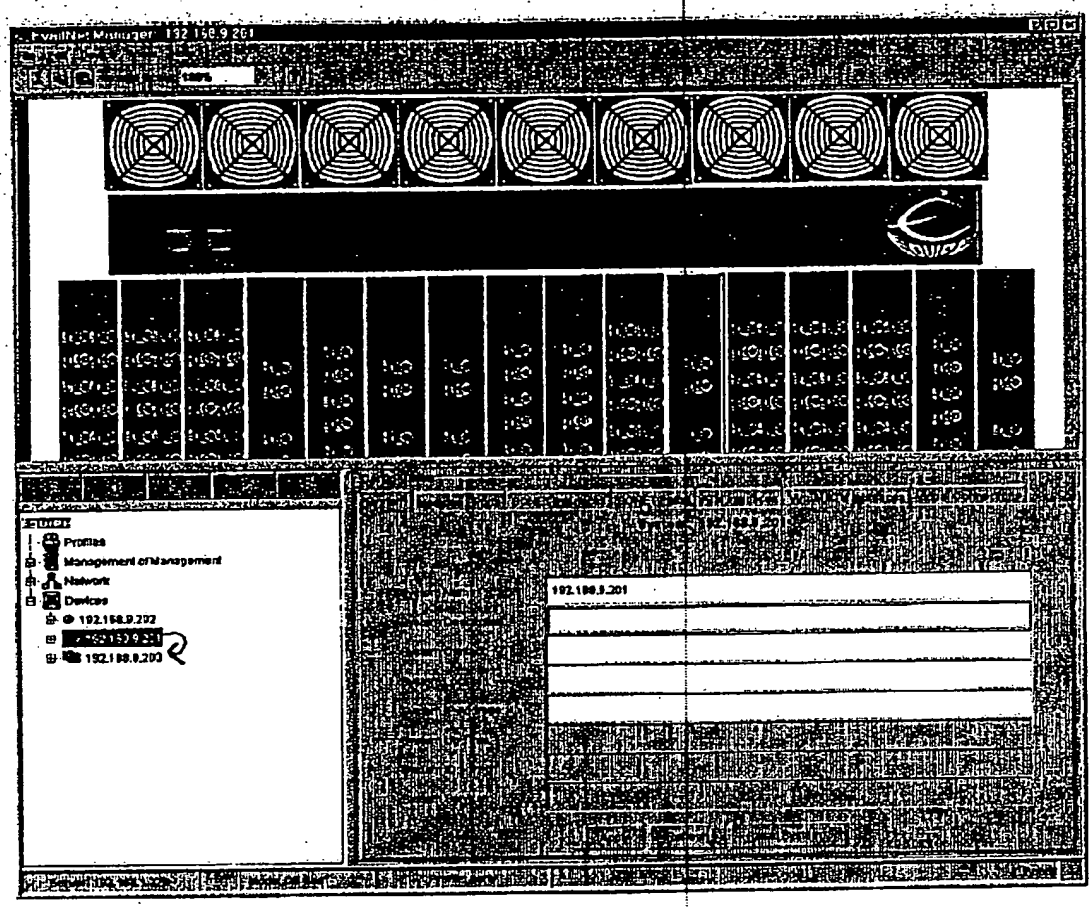
Network
Devices
192.168.8.202
8980

Fig. 6n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Devices
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192.168.9.201

Fig. 6o

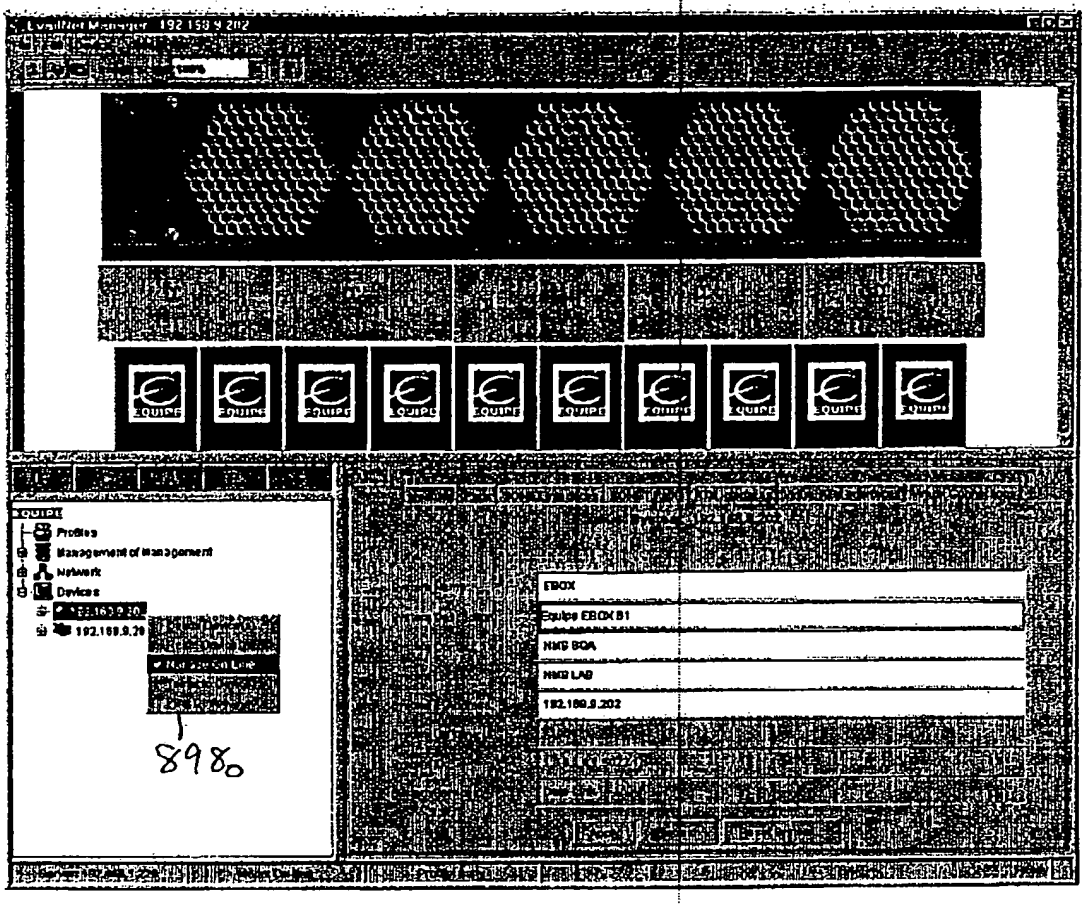


Fig. 6p

US 8,650,634 B2

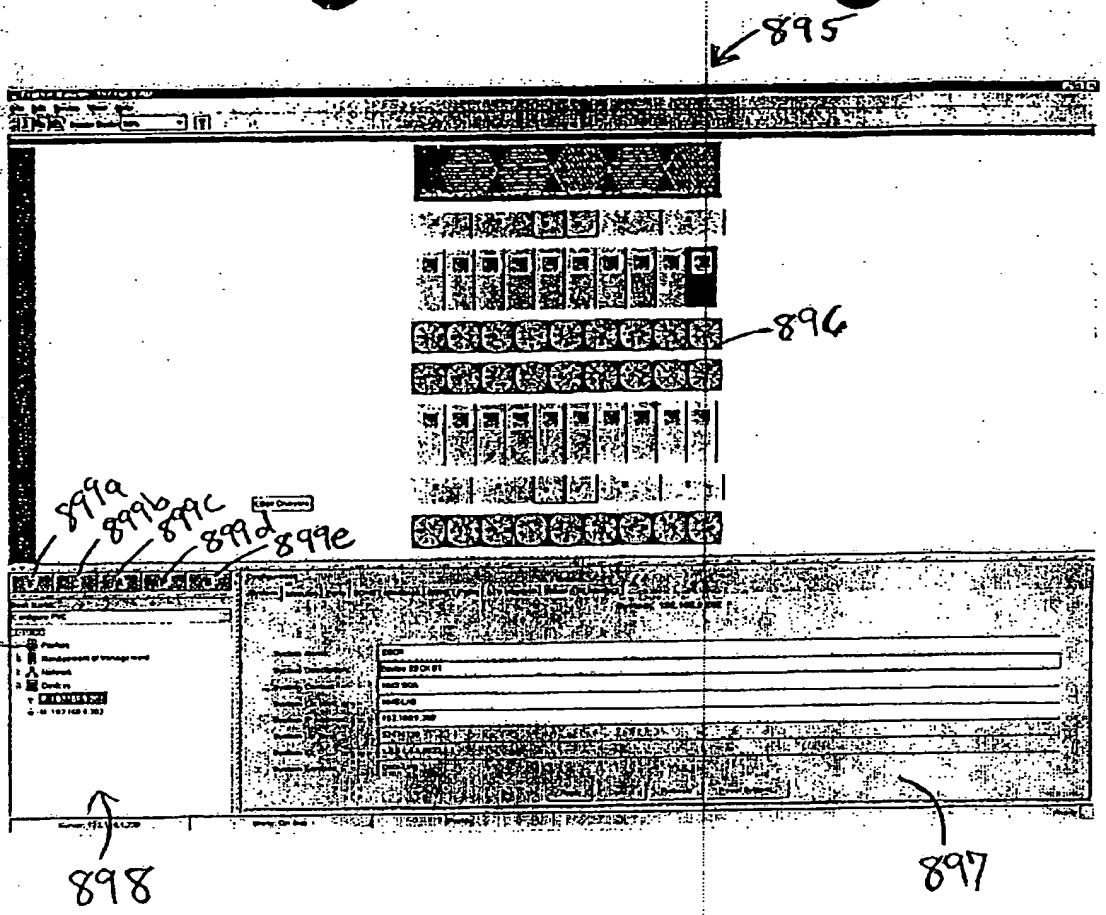
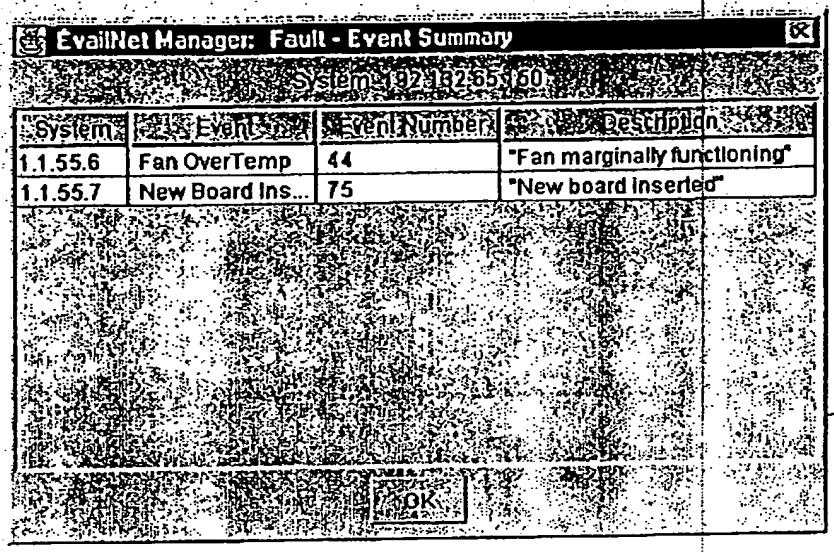


Fig. 7a

0508368-090203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System
Event
Event Number
Description
1.1.55.6
Fan OverTemp
44
"Fan marginally functioning"
1.1.55.7
New Board Ins...
75
"New board inserted"
OK

Fig. 7b

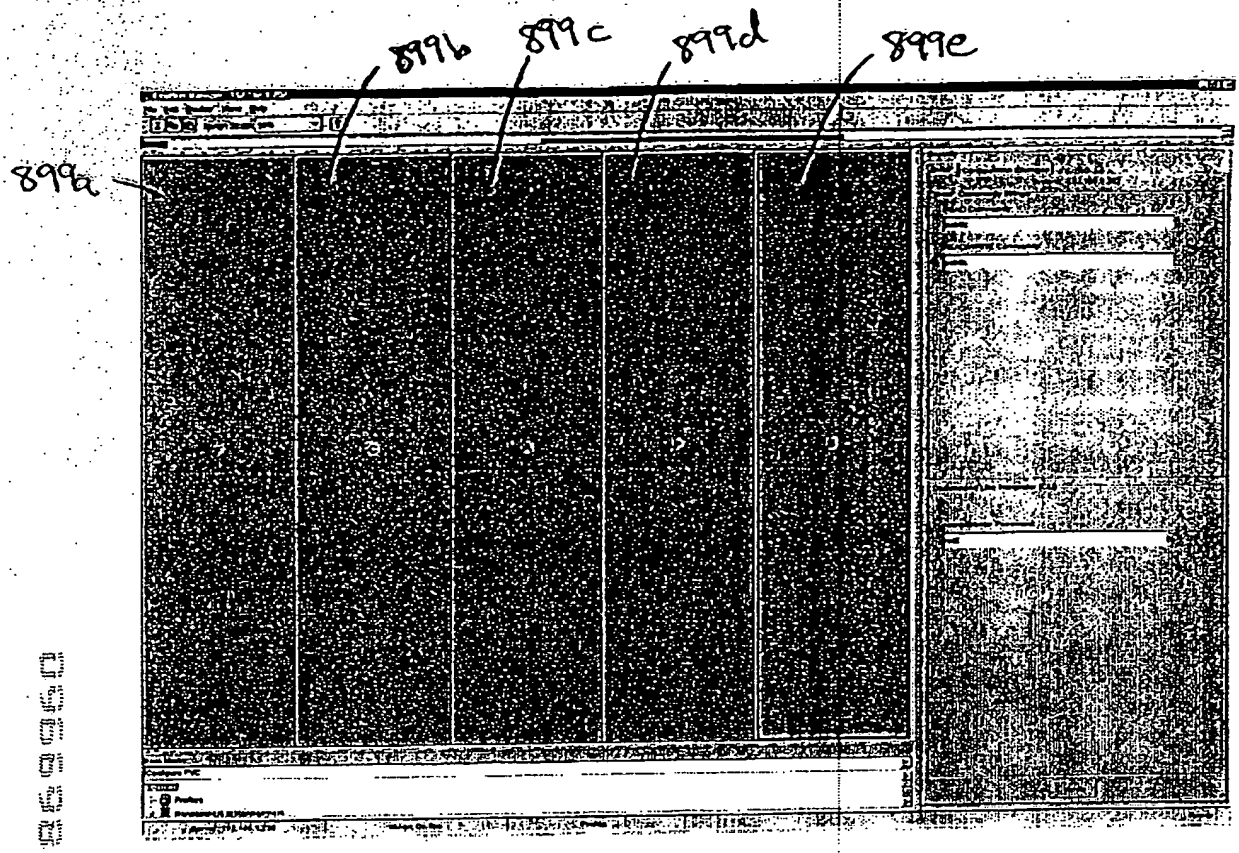
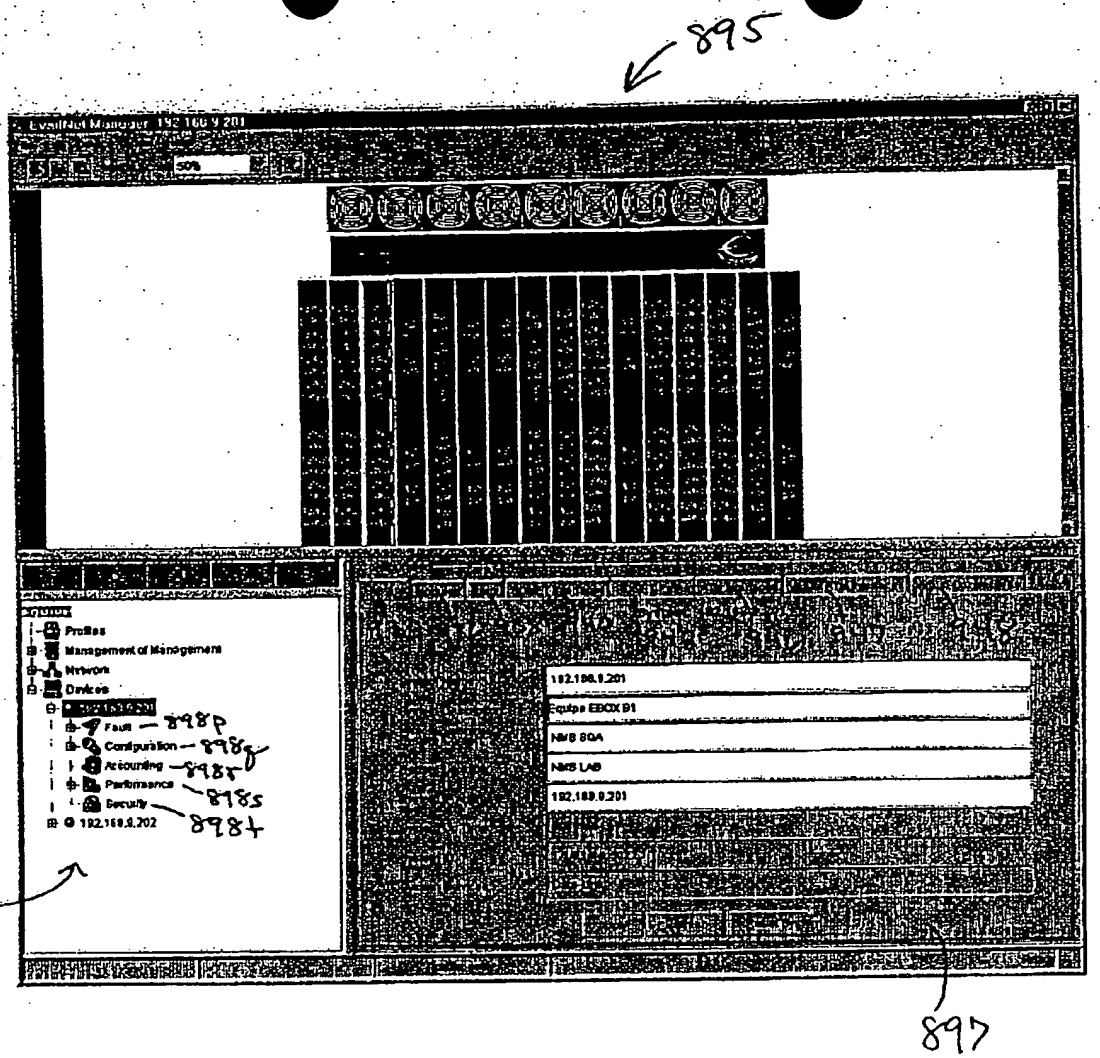


Fig.7c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NMS LAB
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Fig. 7d

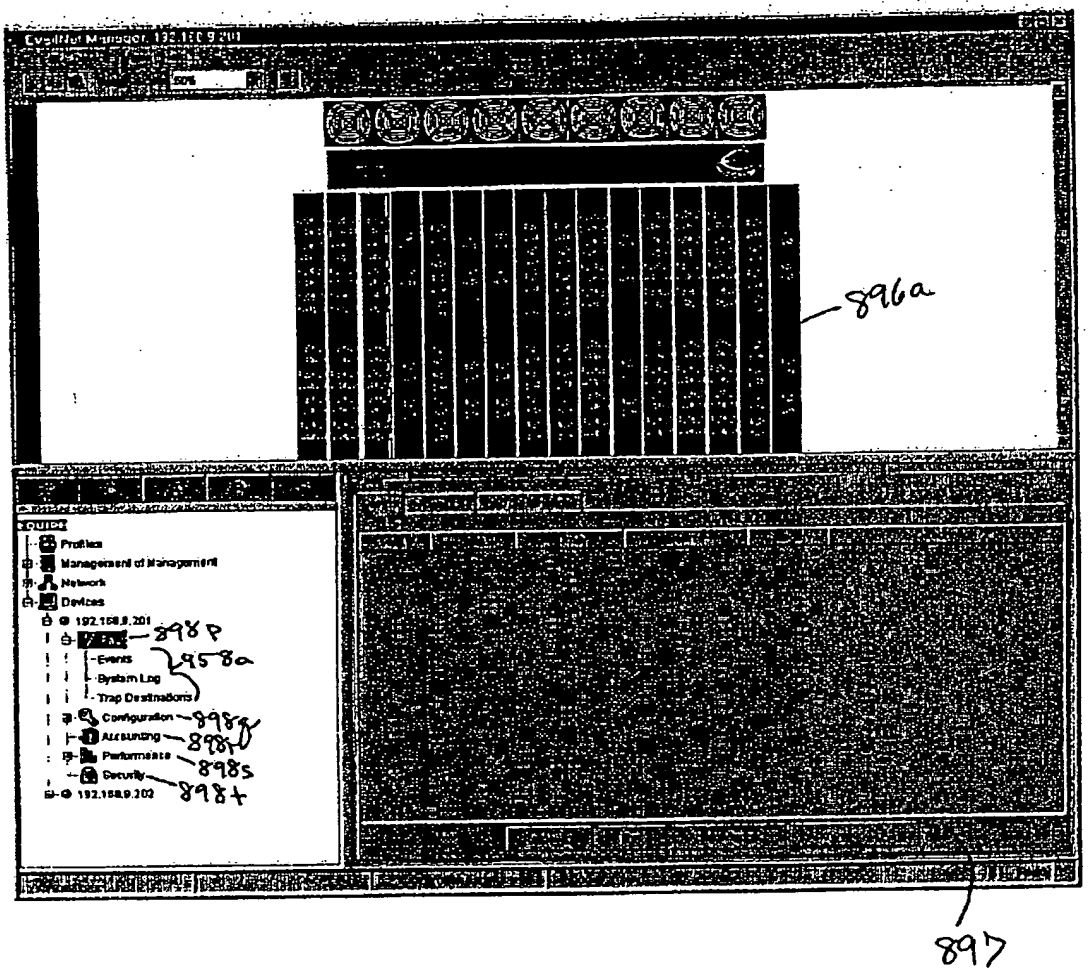
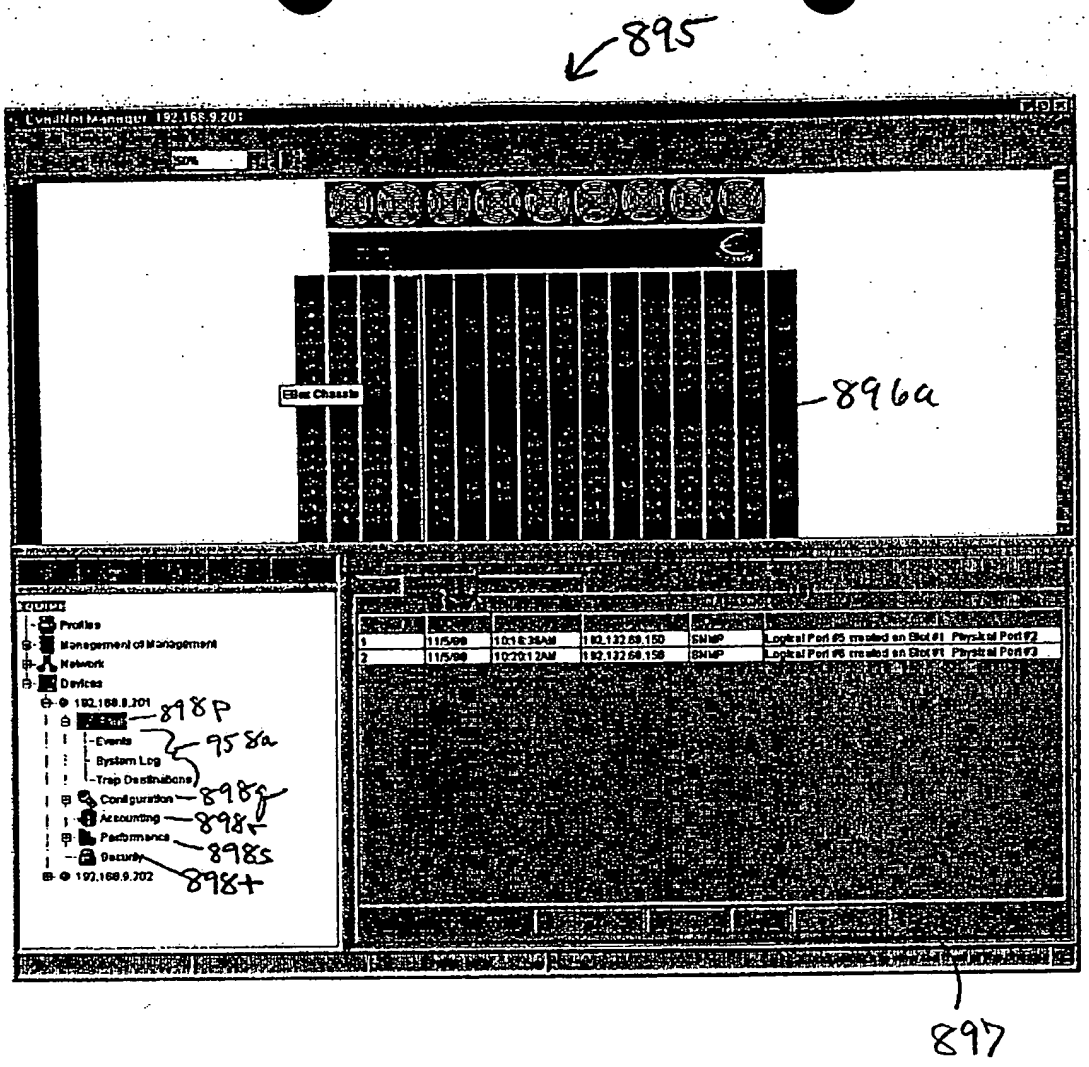


Fig. 7e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Accounting
Performance
Security

Fig. 7f

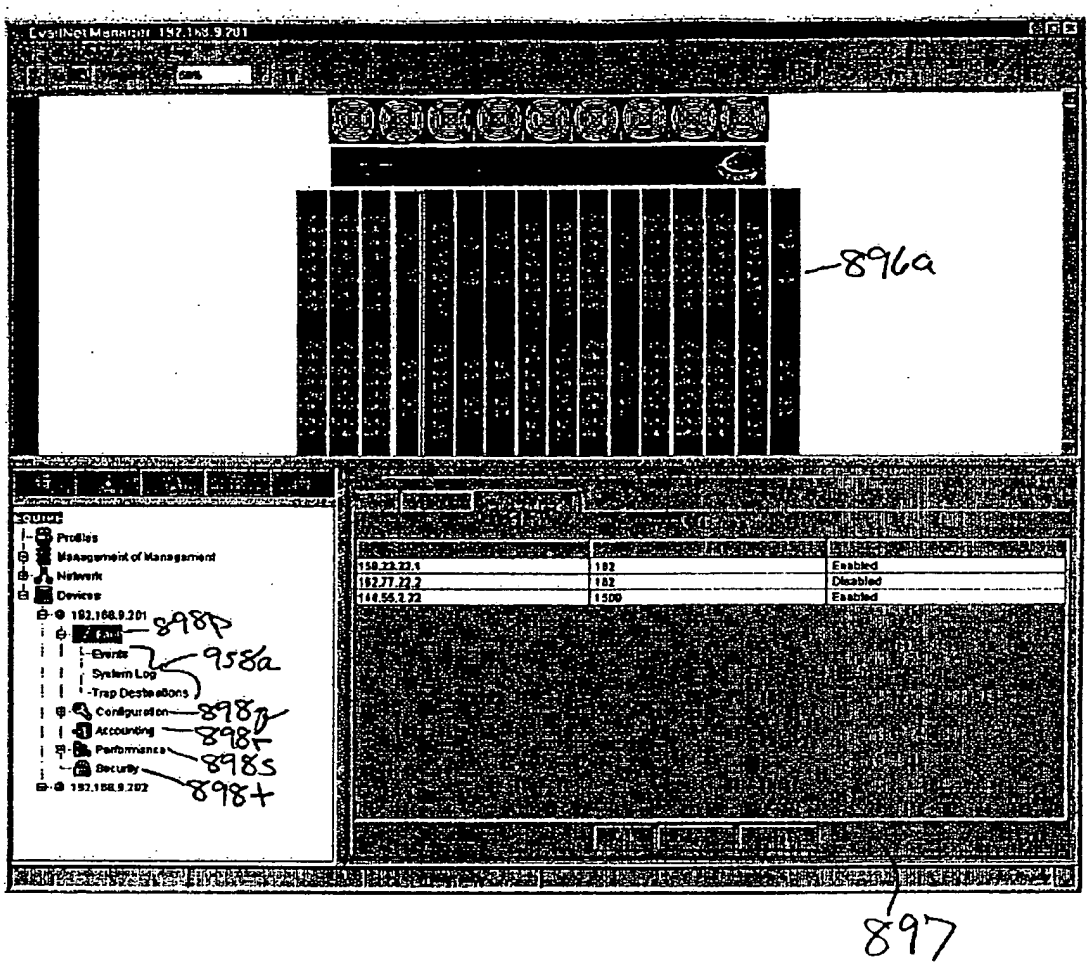

Fig. 7g

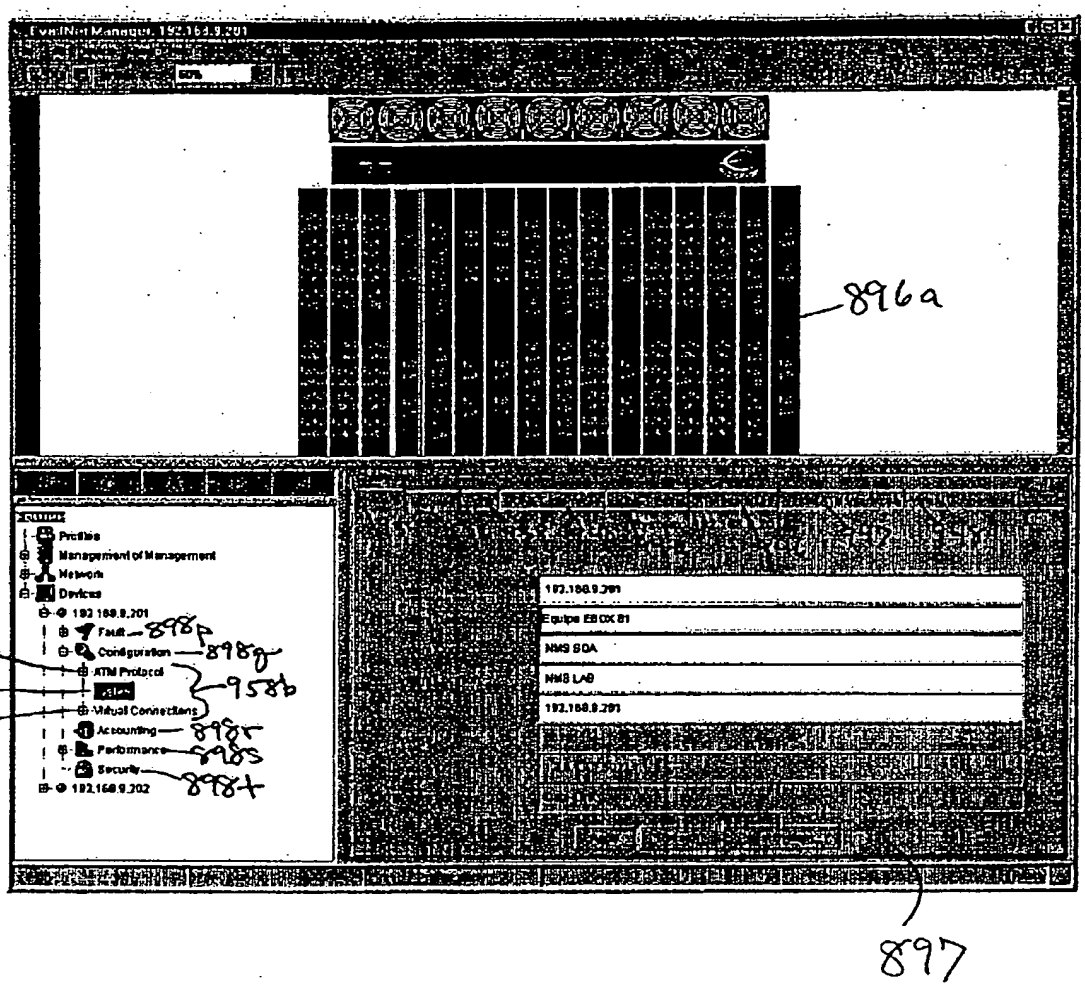
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Fig. 7h

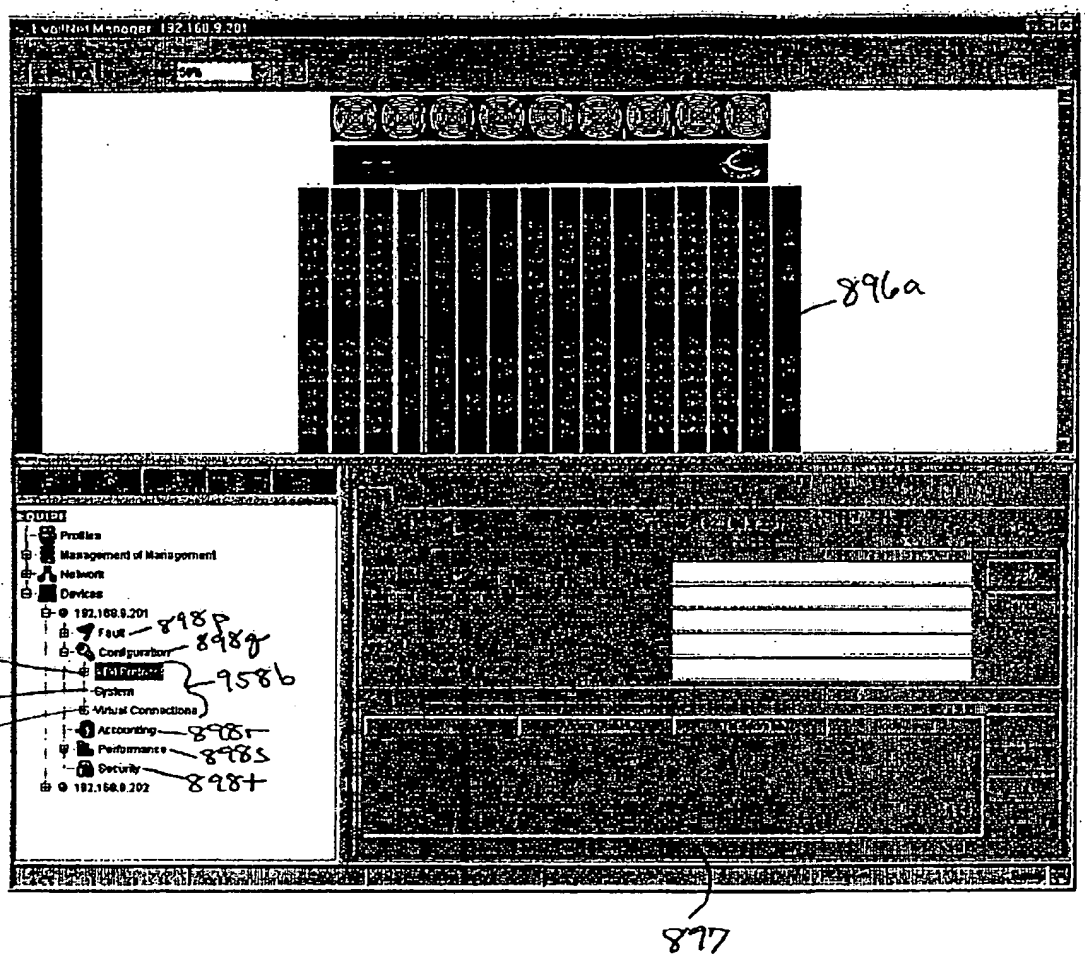
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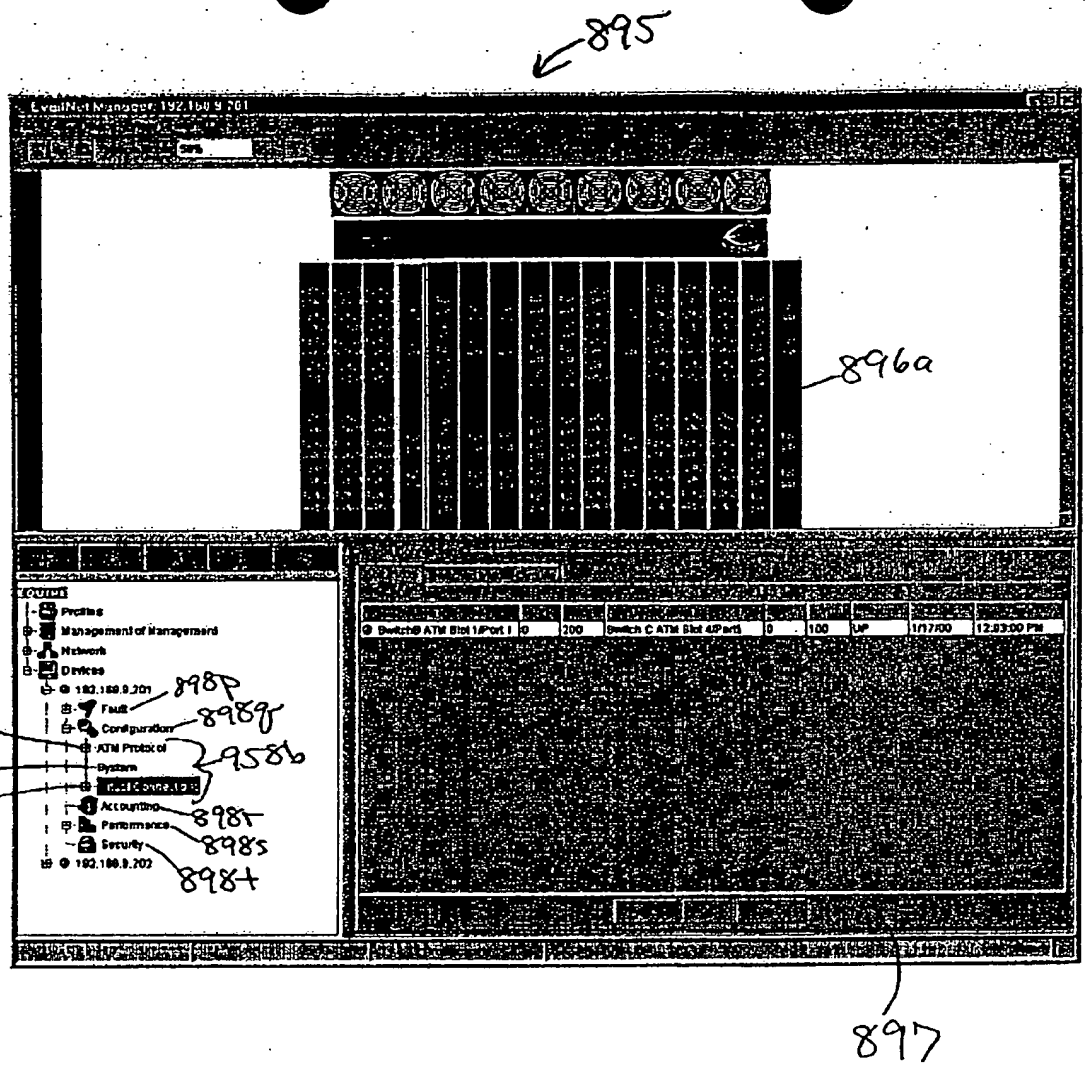
Fig 7i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Accounting
Performance
Security

Fig. 7j

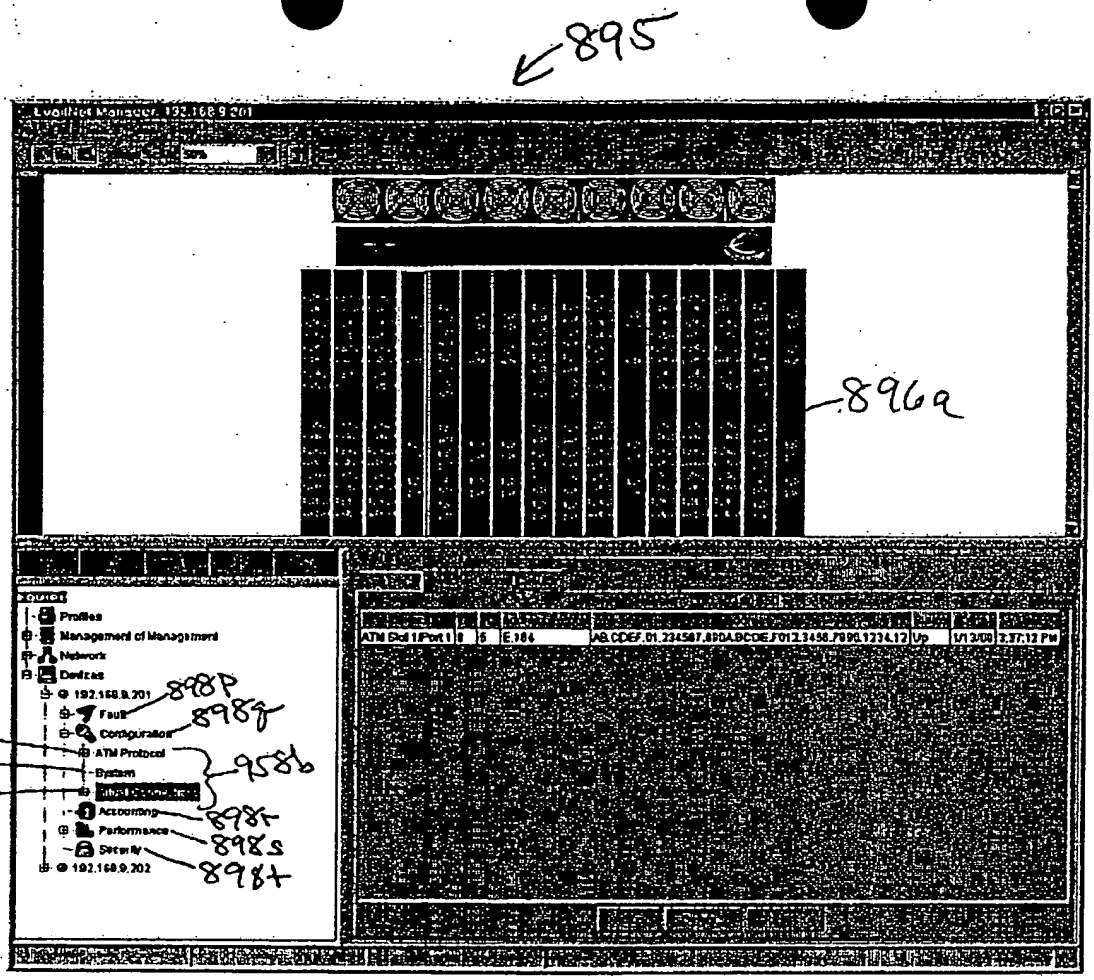

Fig. 7K

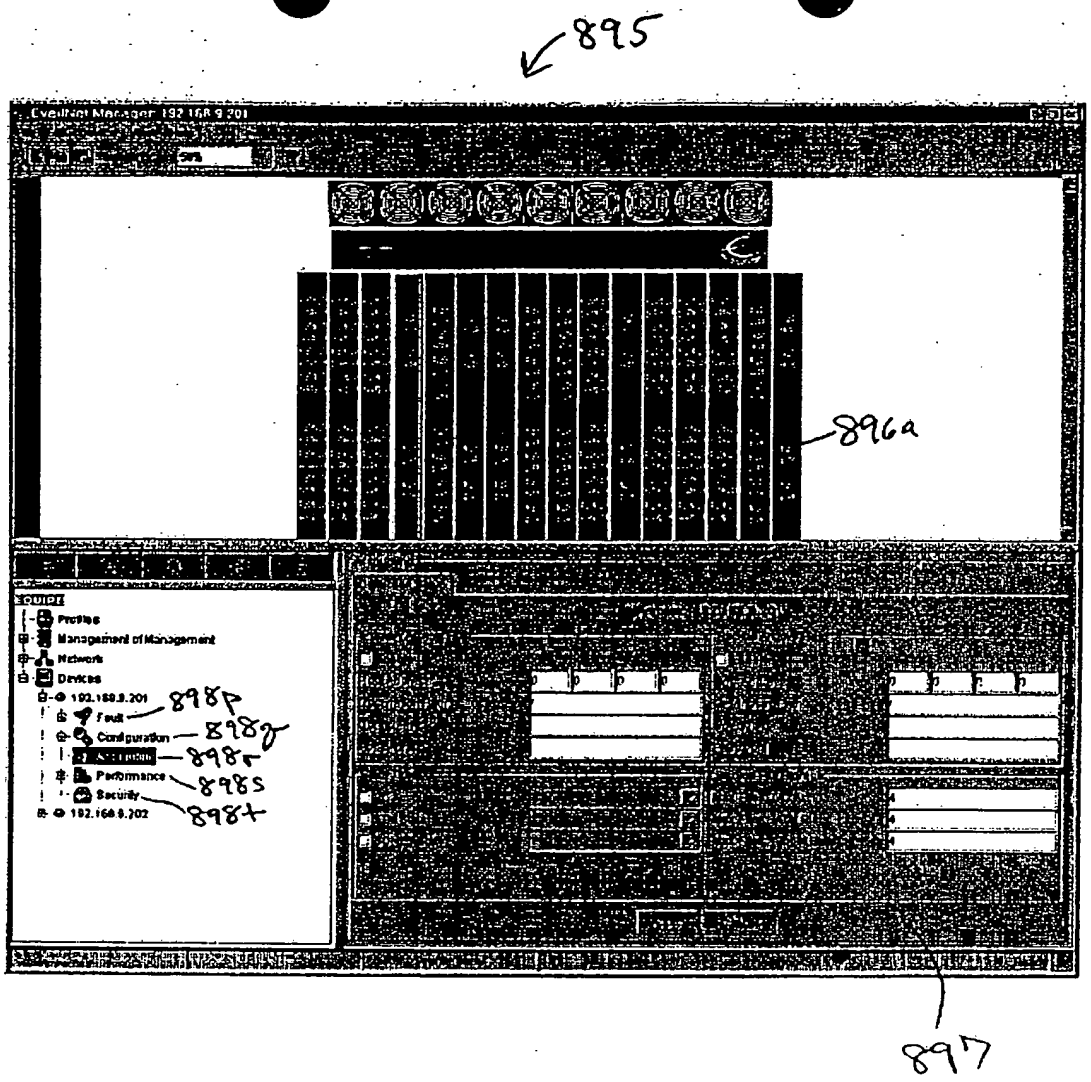
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Fig. 7L

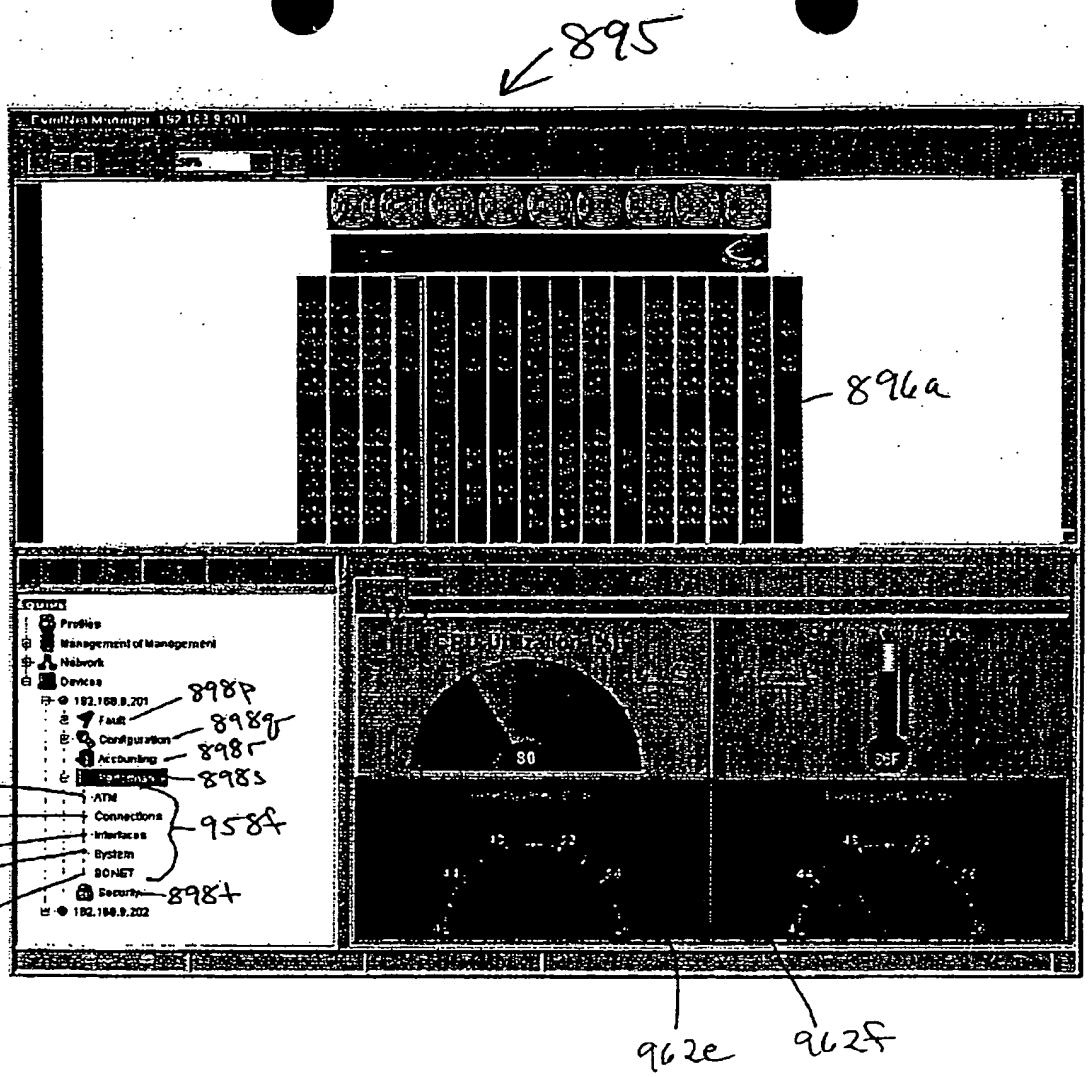
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Fig. 7m

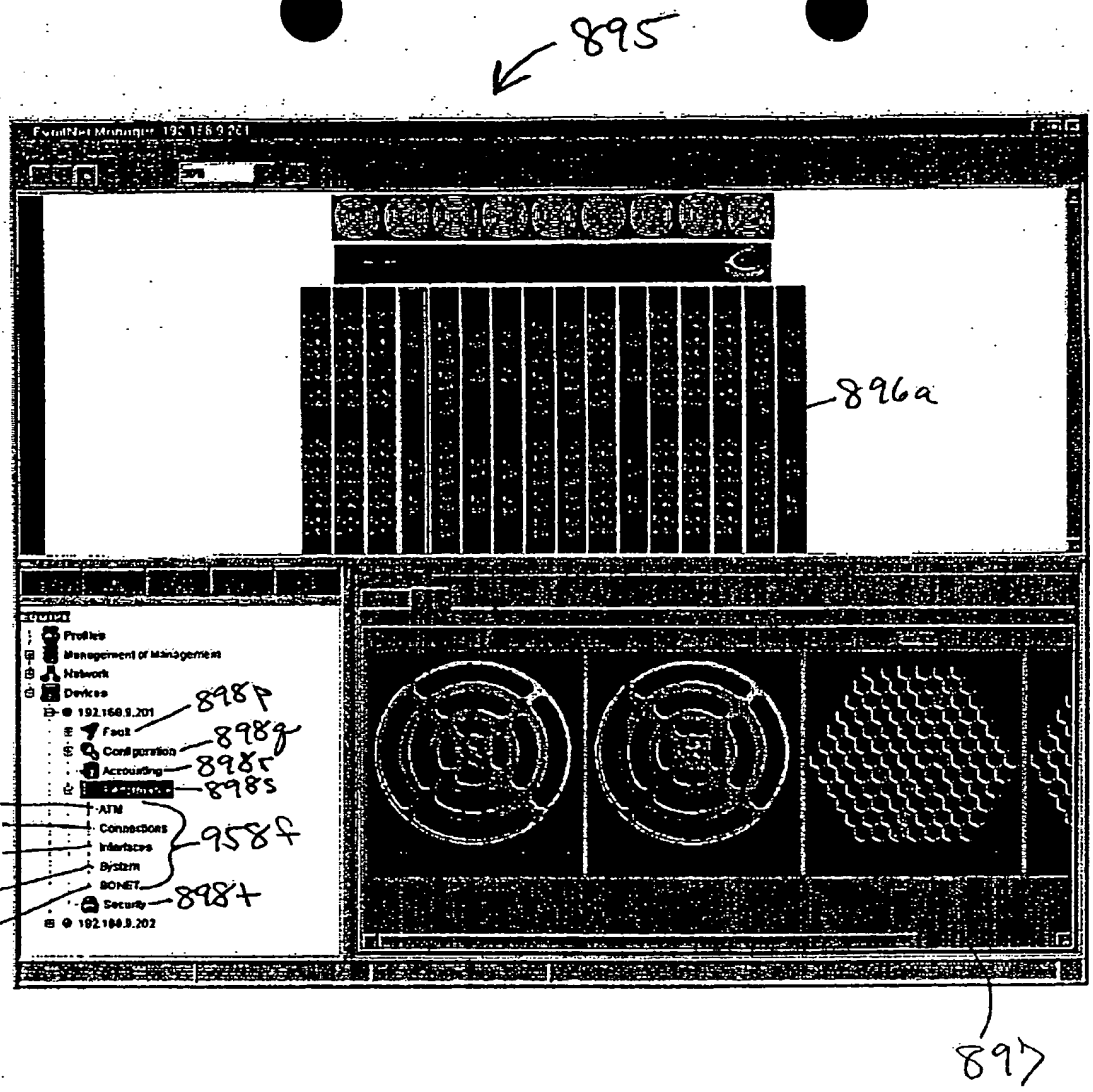
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Fig. 7n

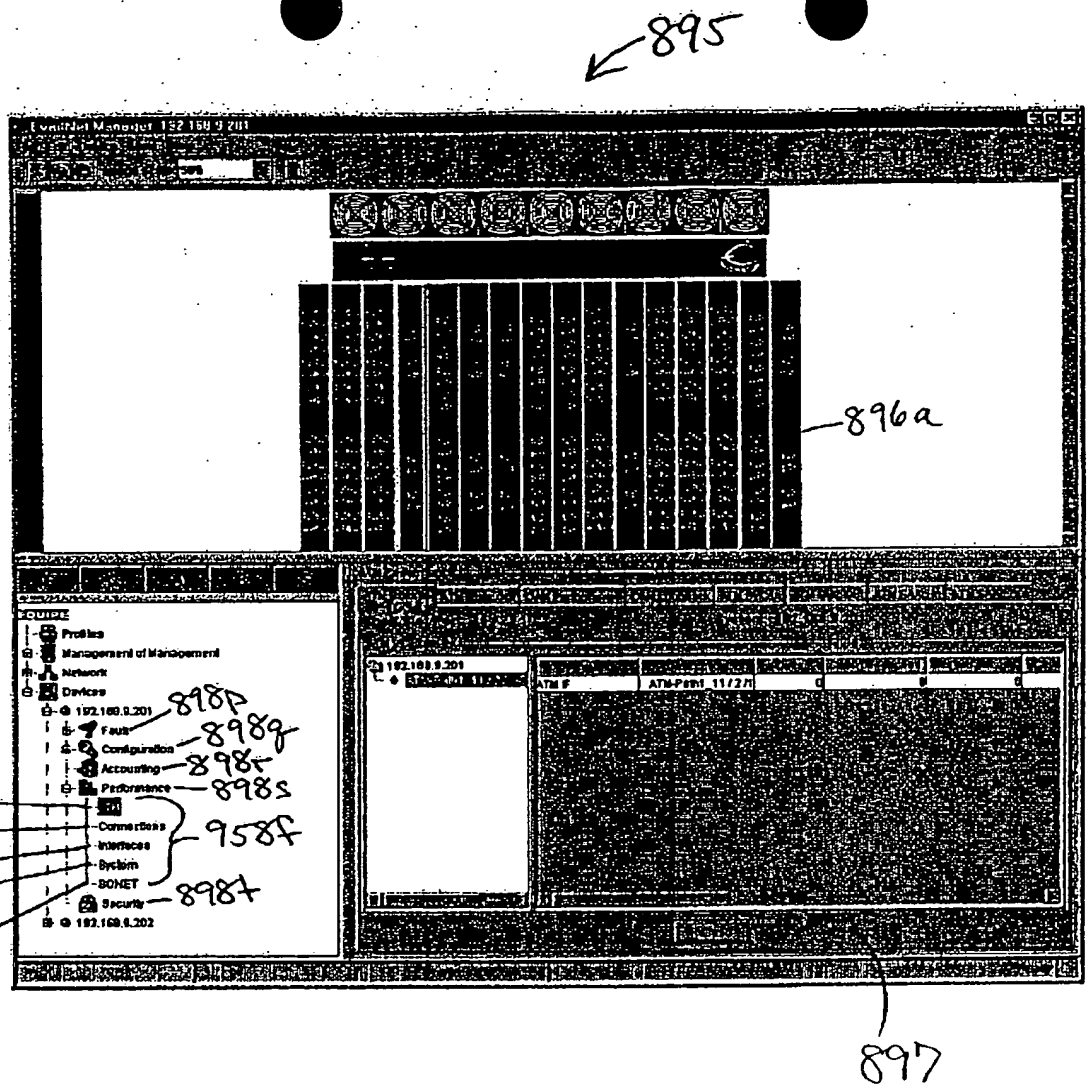
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Fig. 7o

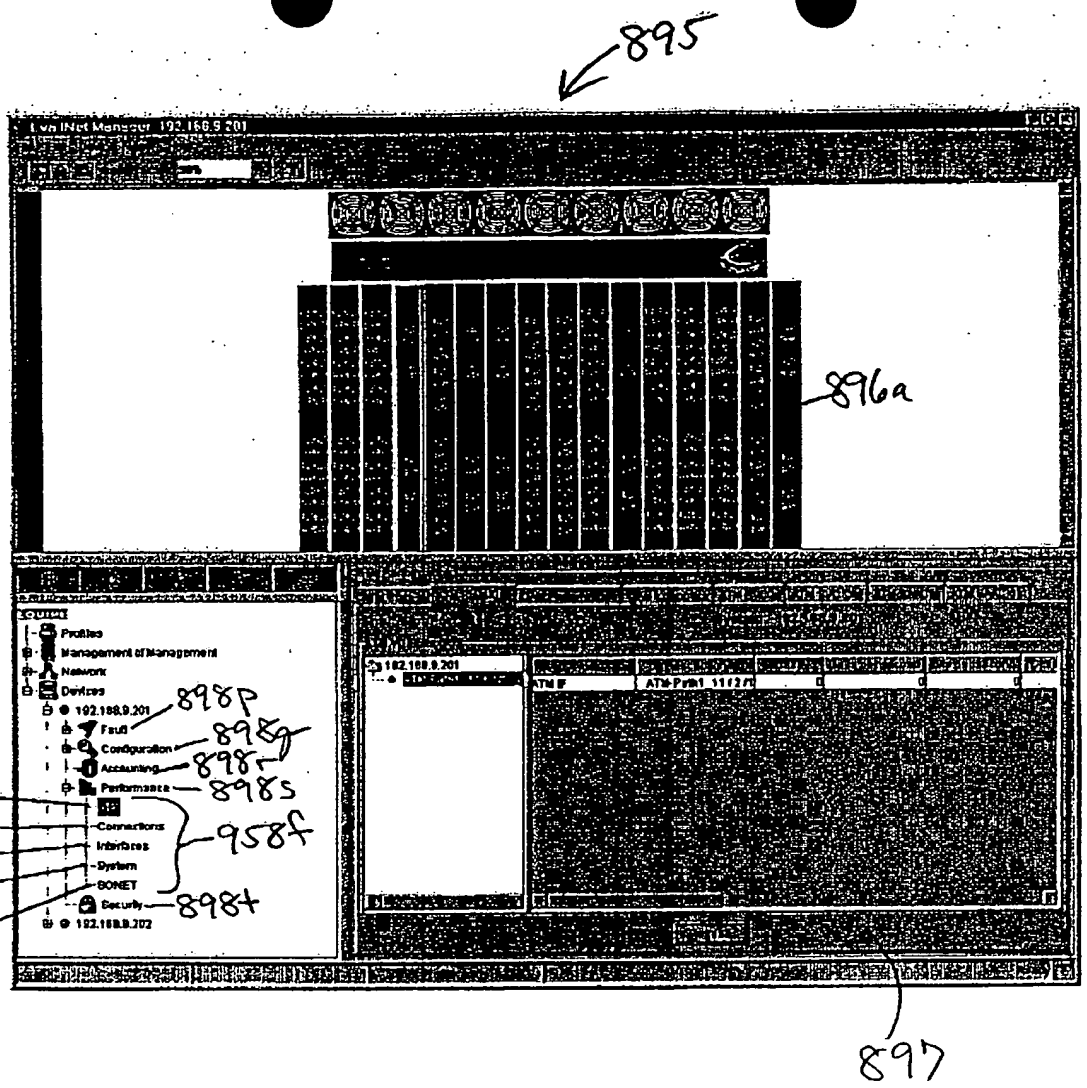
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Fig. 7p

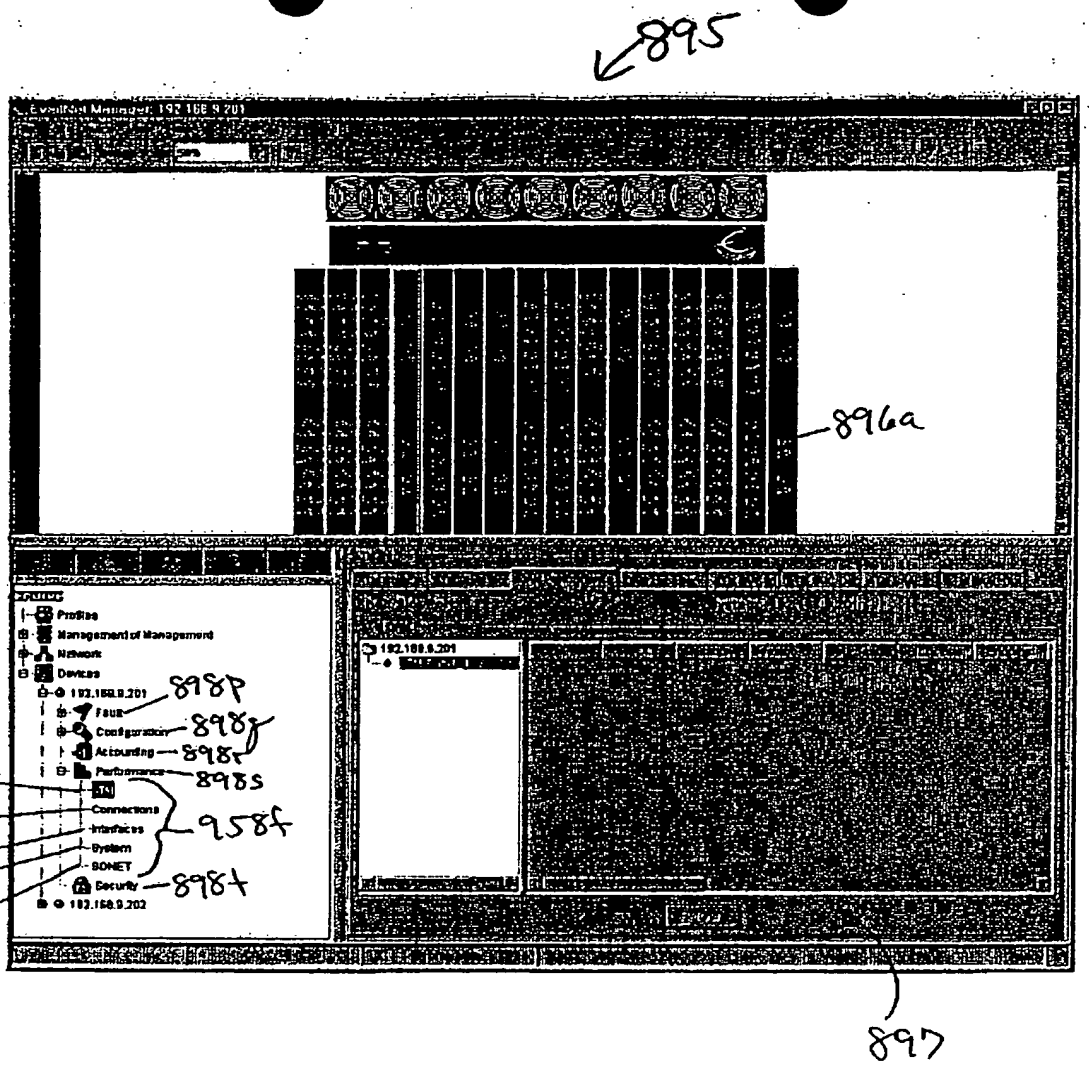
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Fig. 7g

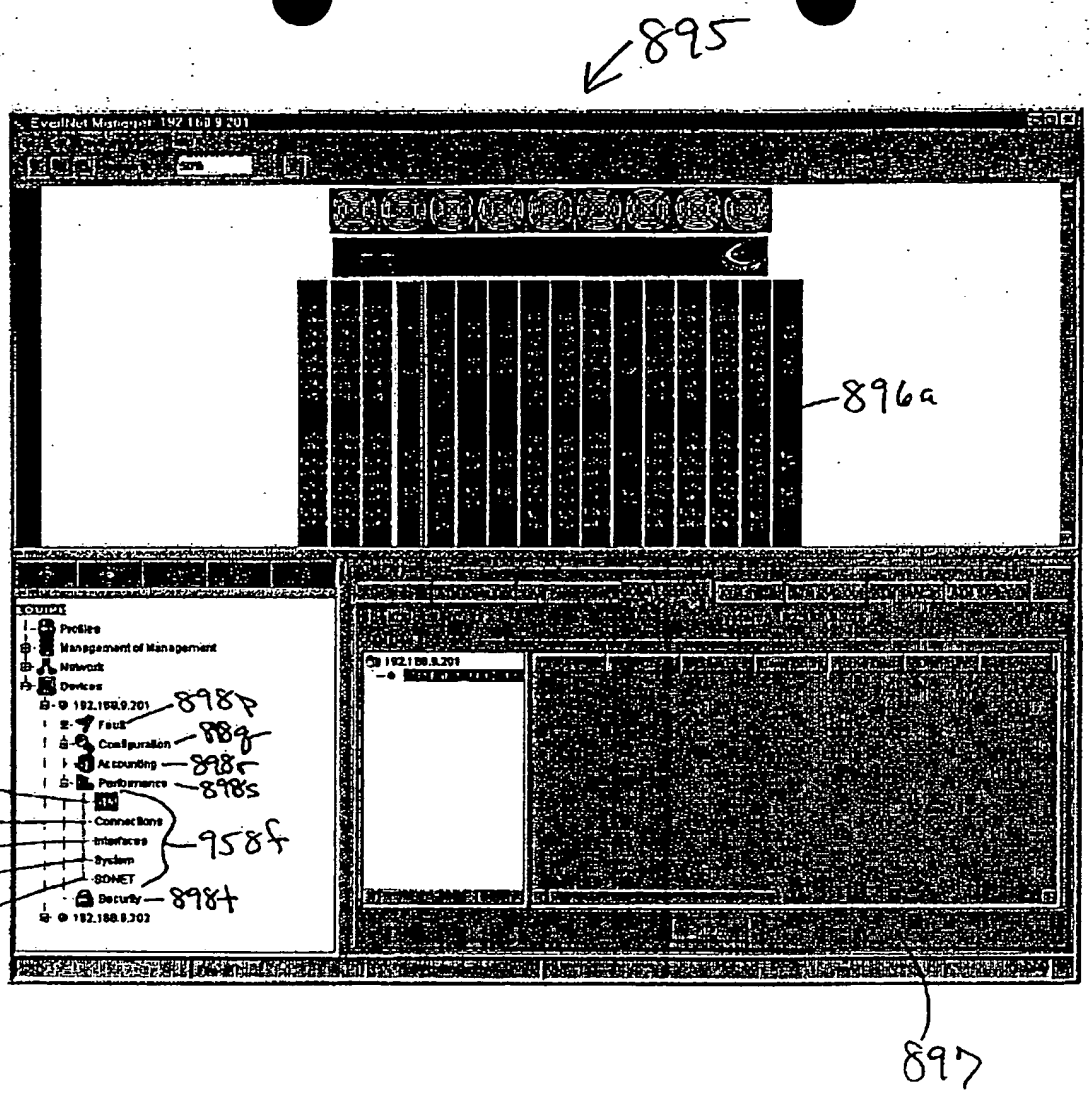
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Fig. 7F

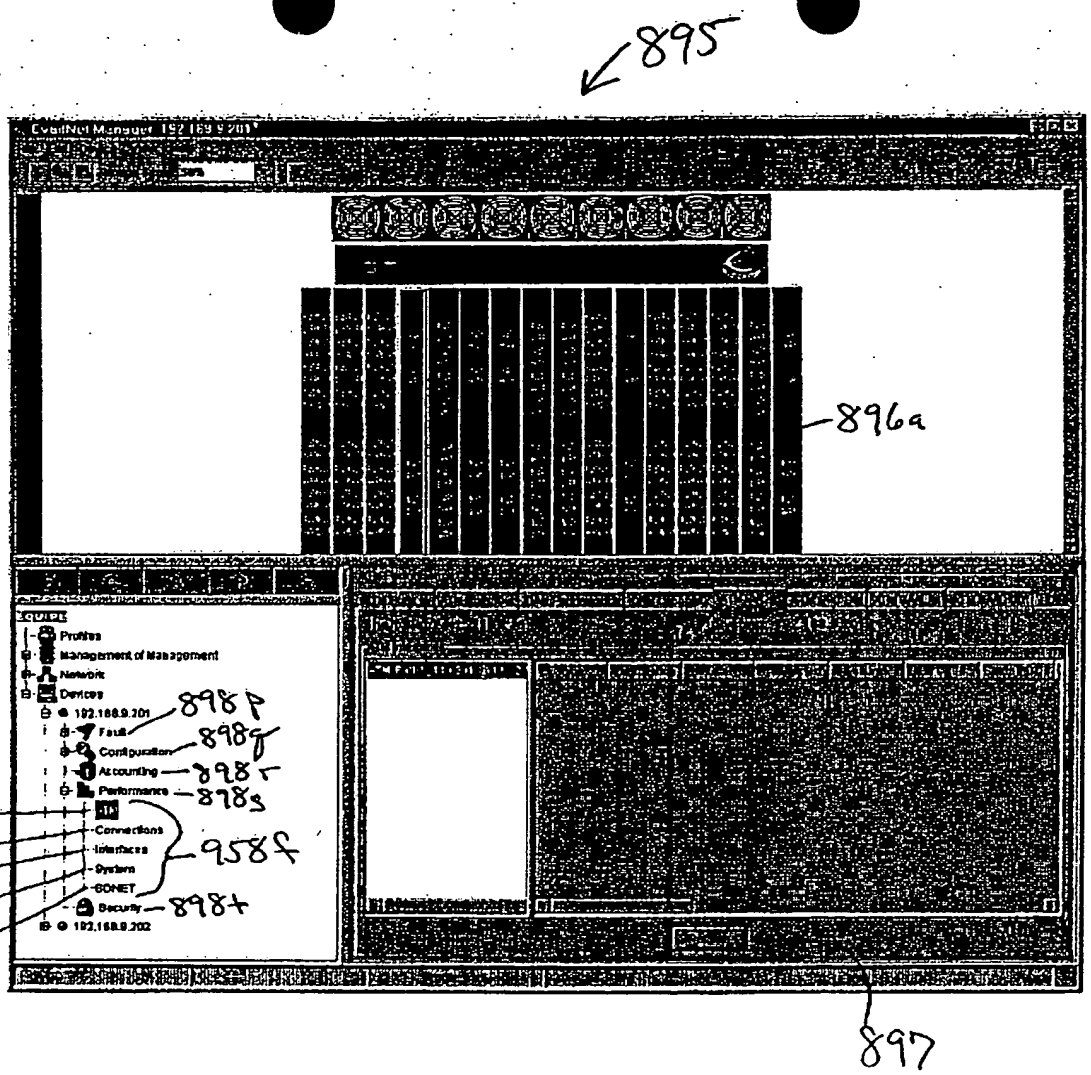
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Fig. 7s

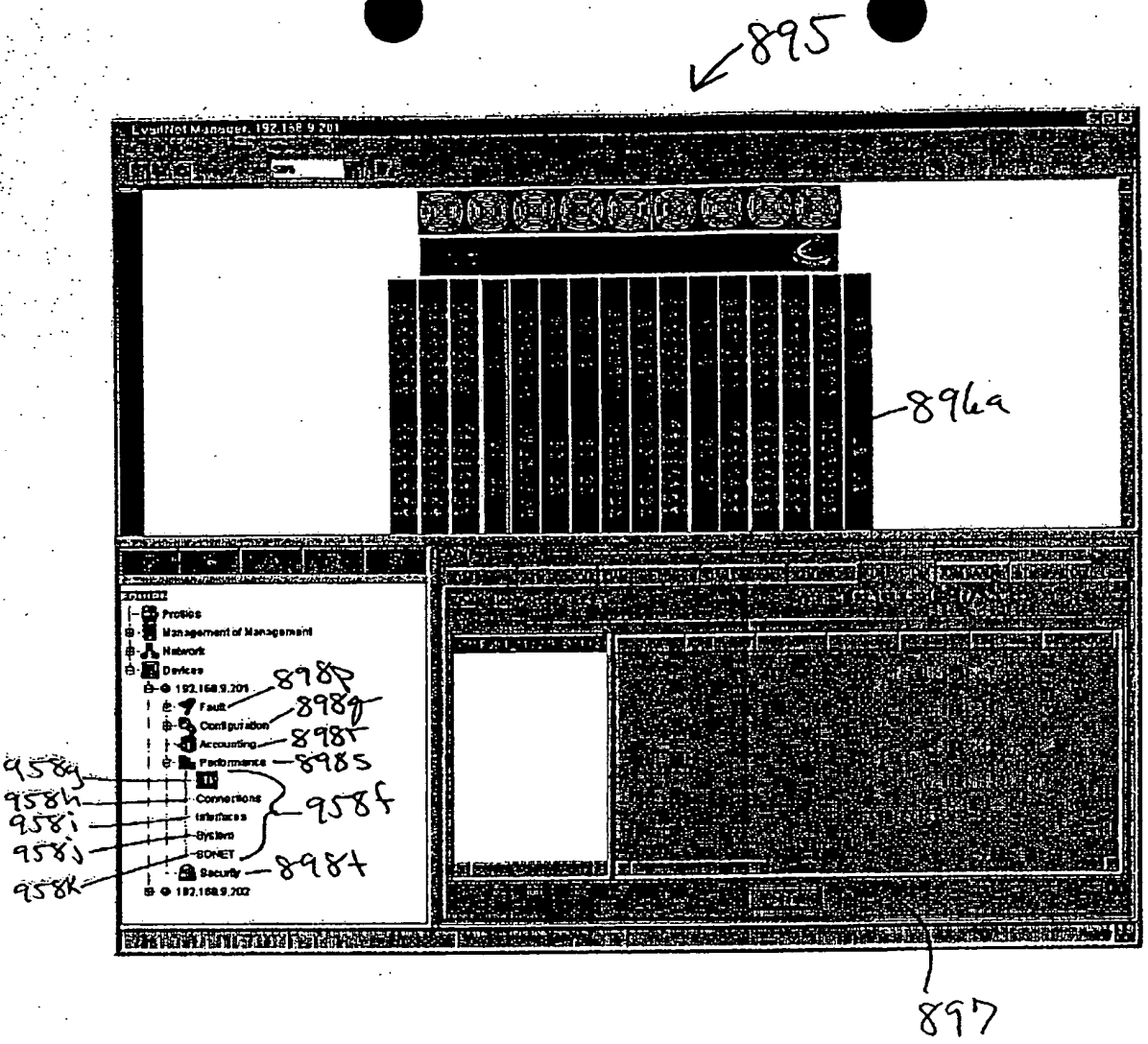
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Fig. 7t

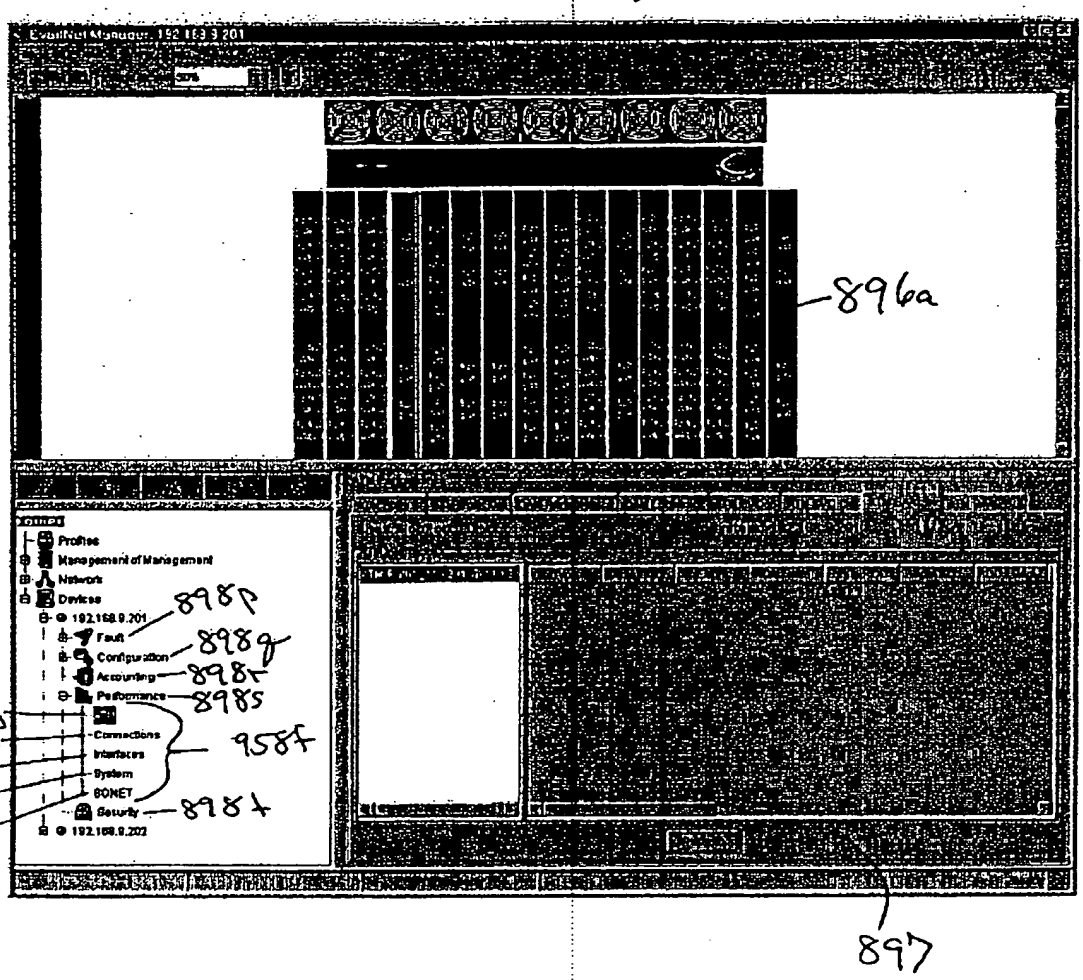
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Fig. 7u

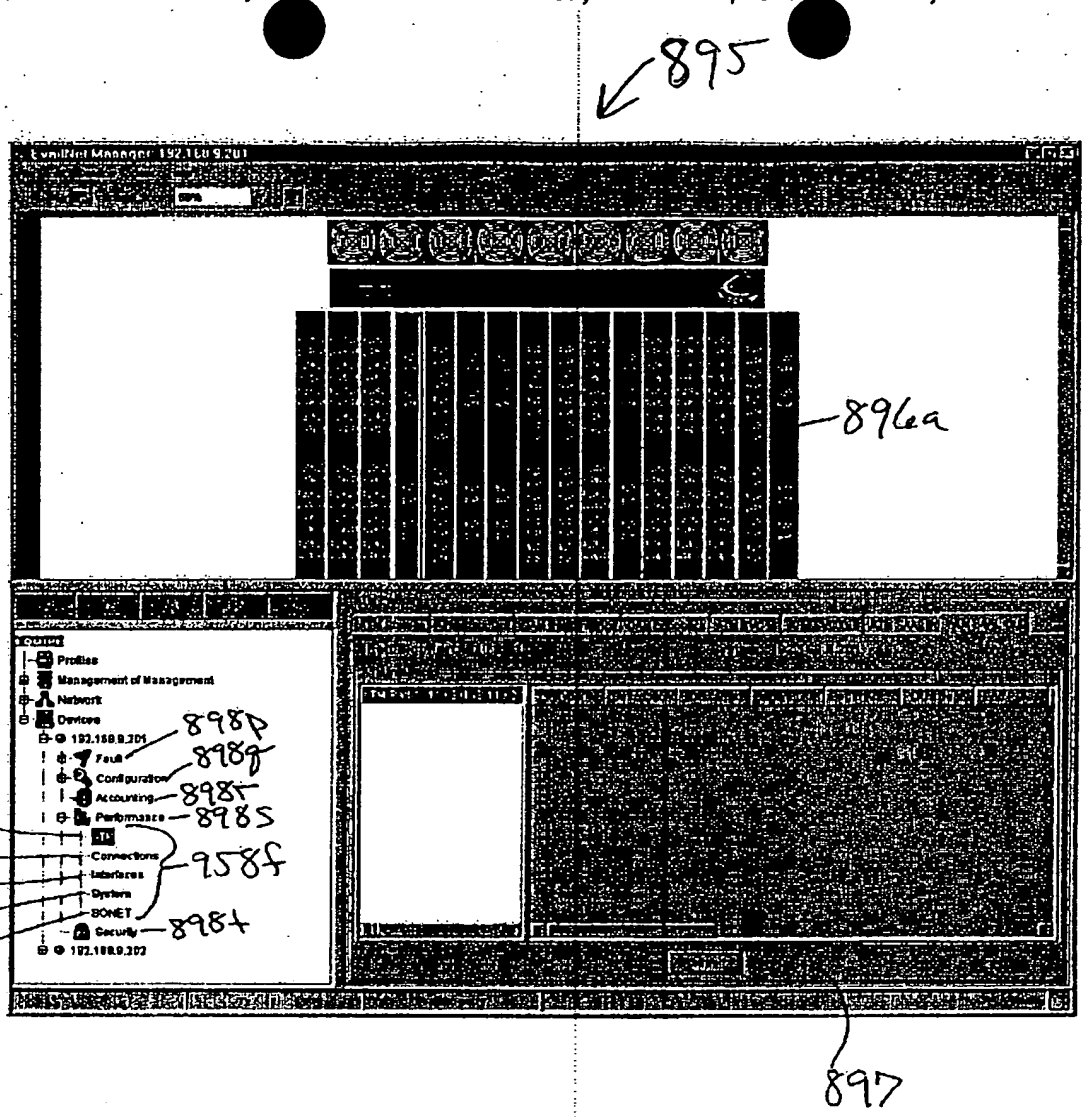
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Fig. 7v

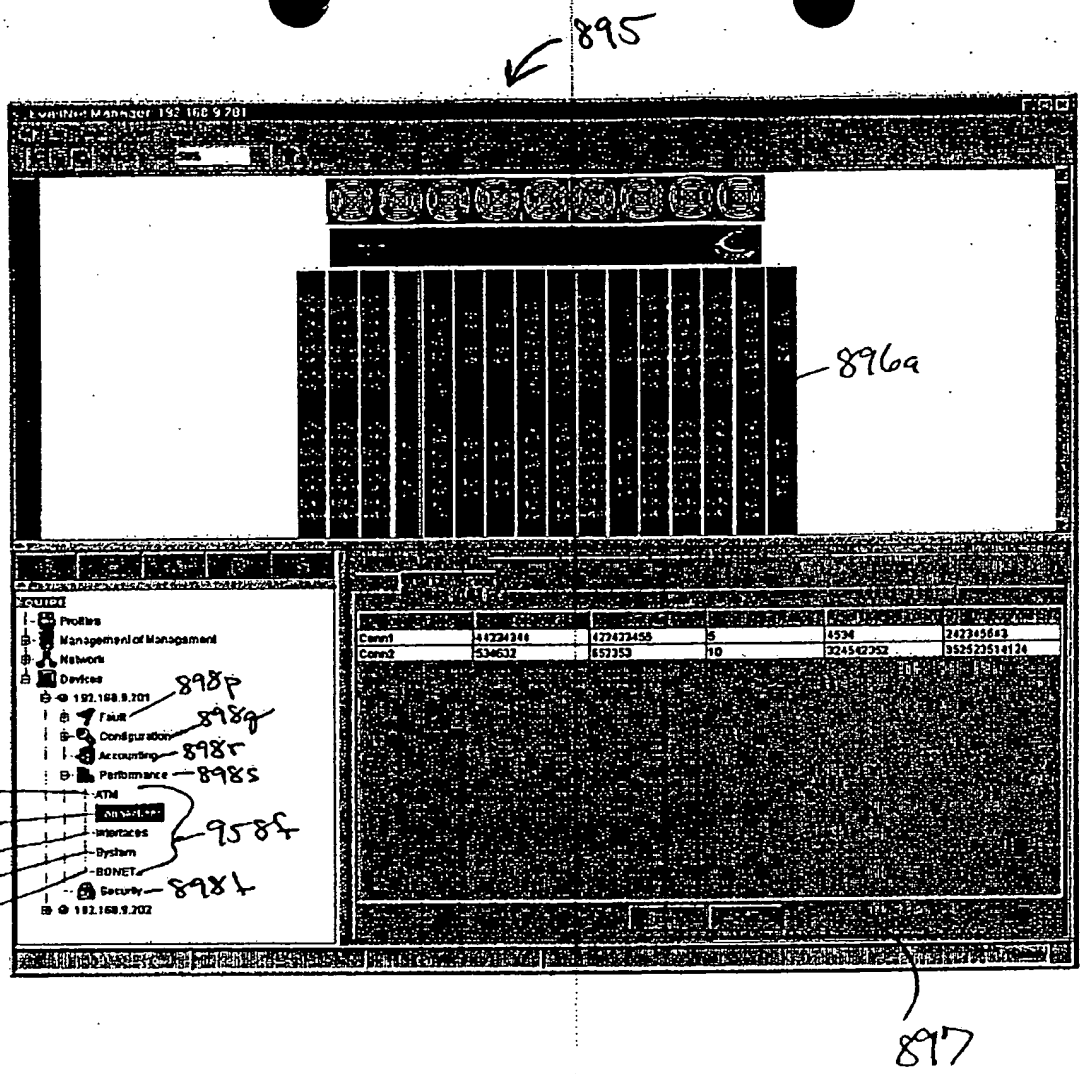
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Fig. 7w

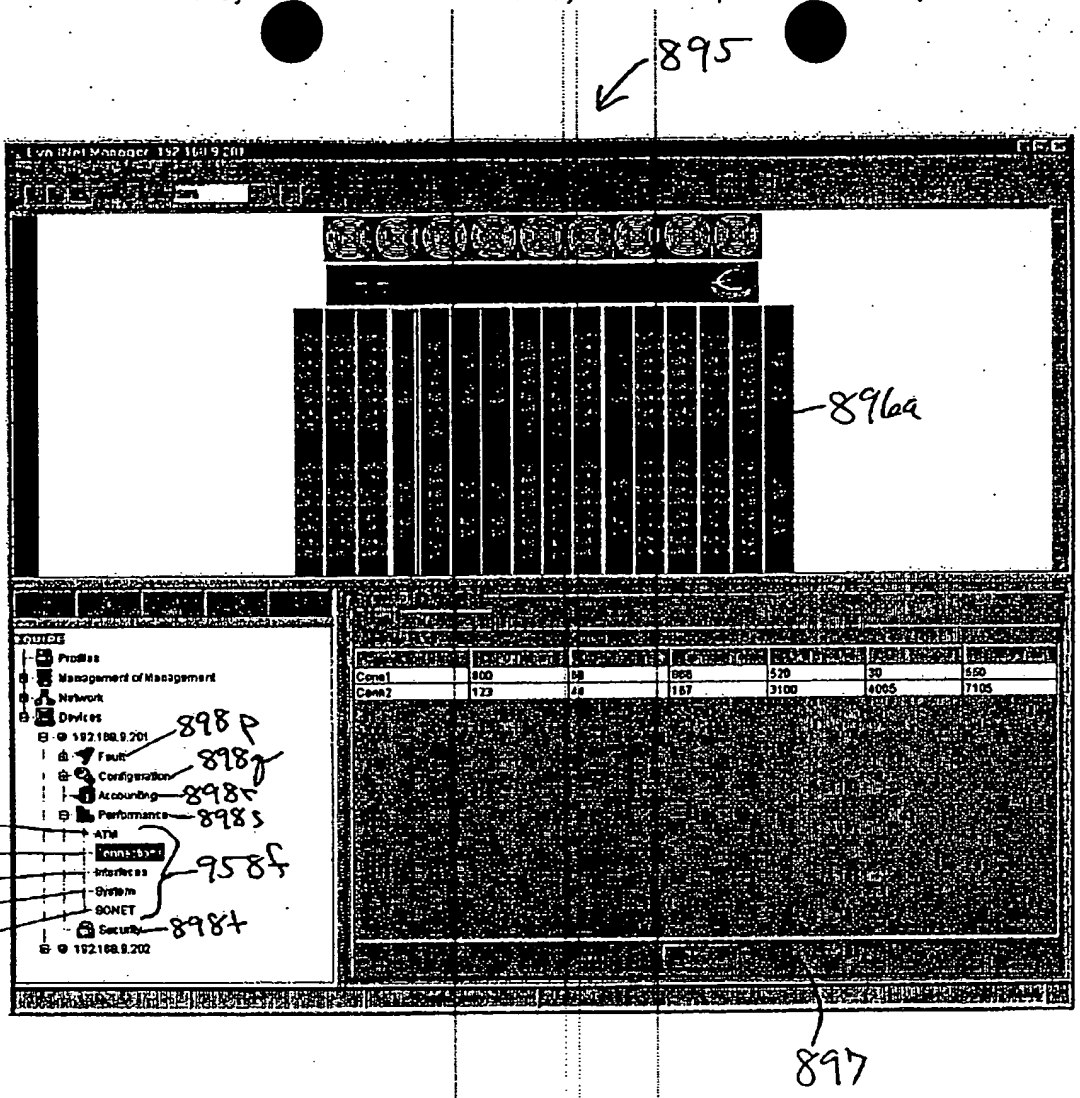
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Fig. 7x

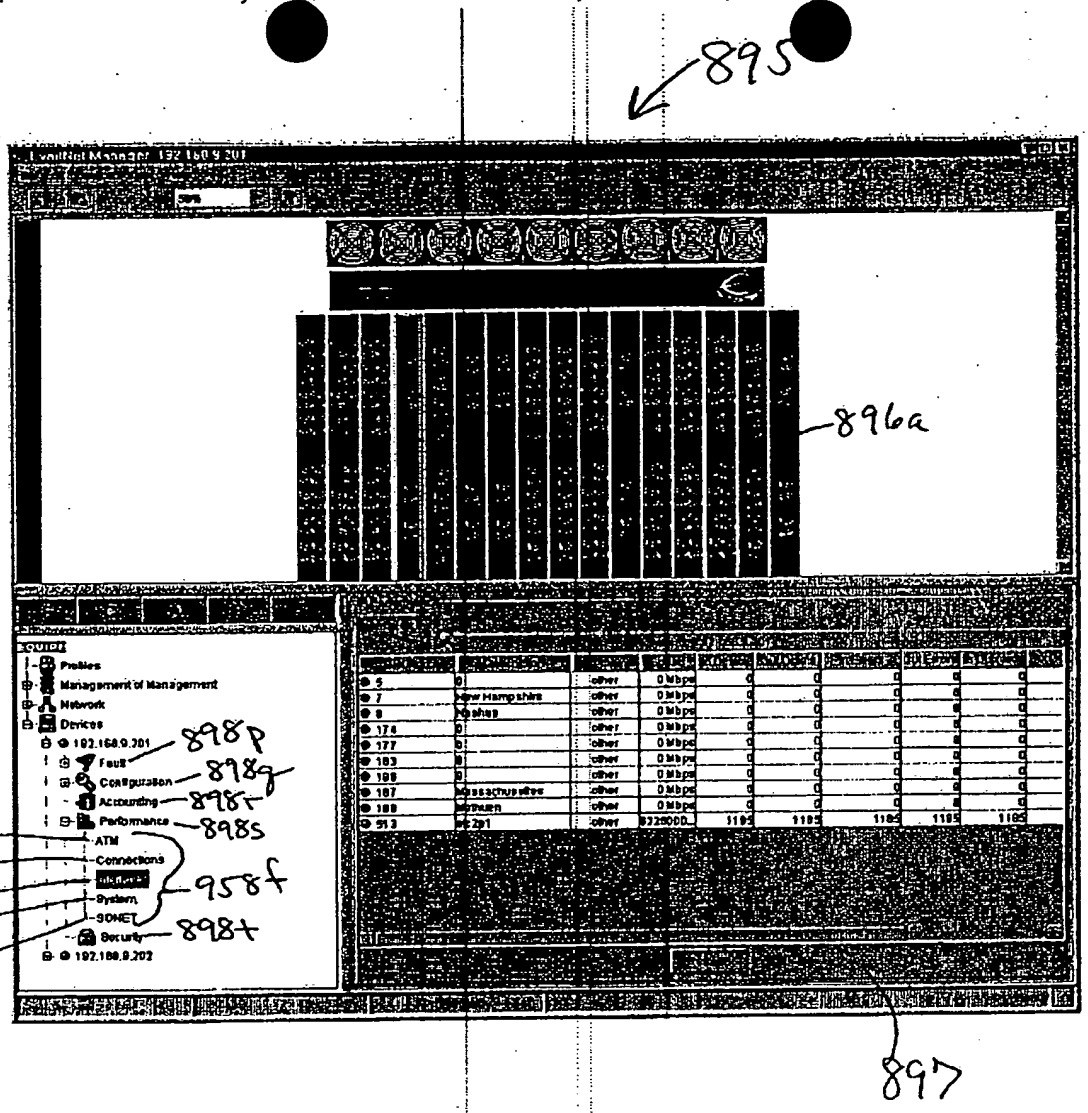
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Fig. 7Y

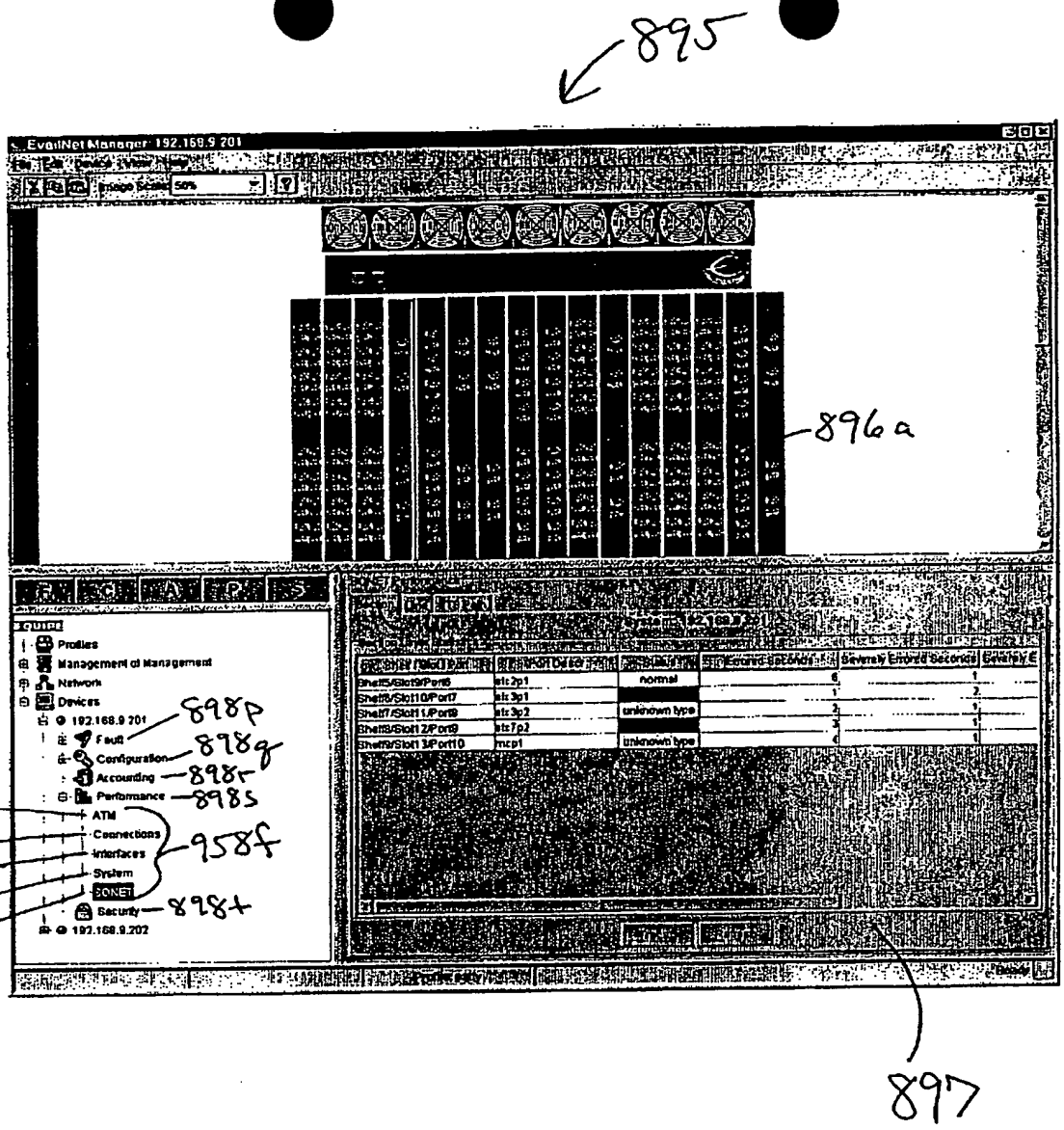
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Fig. 8a

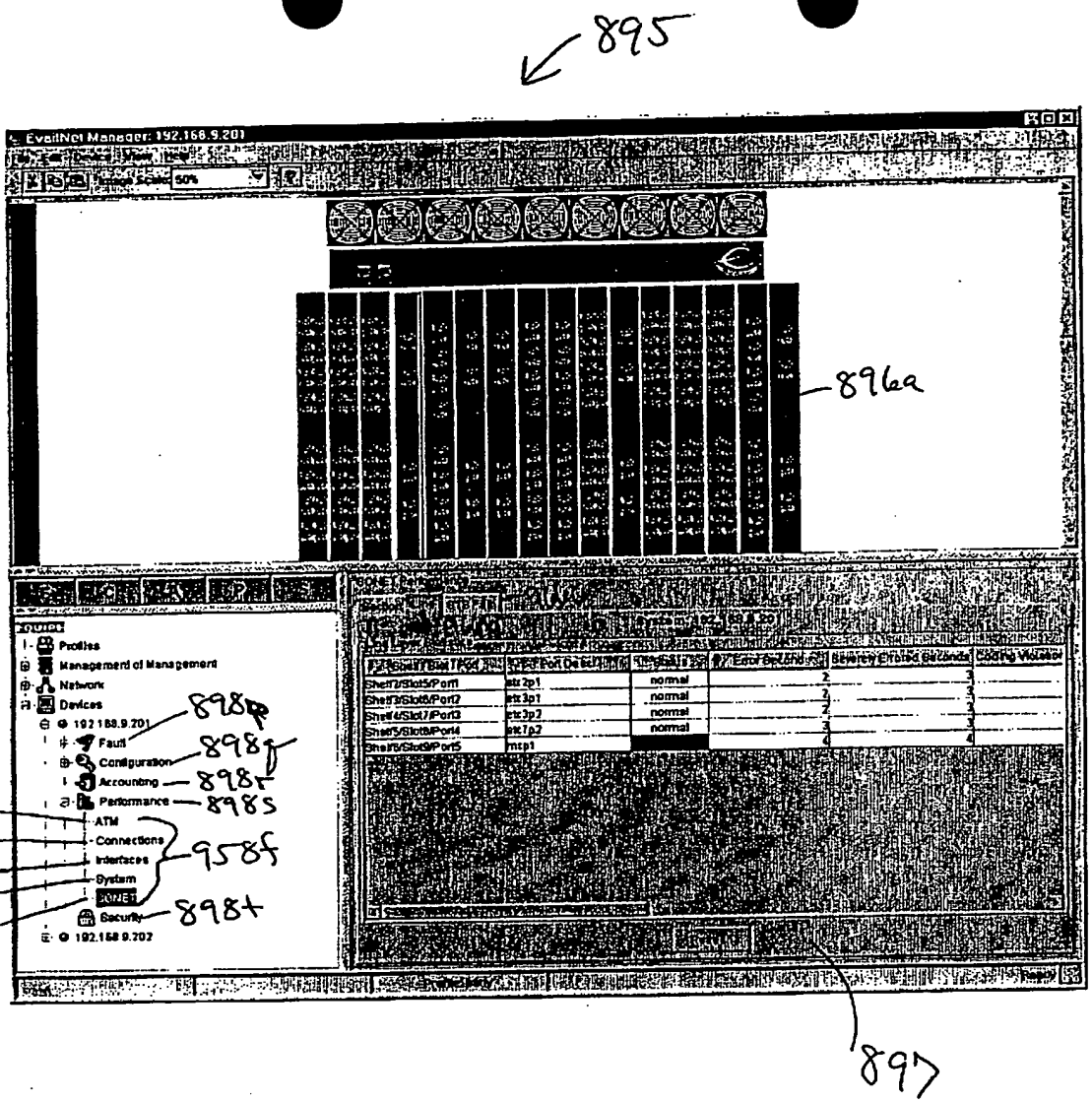
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Fig. 8b

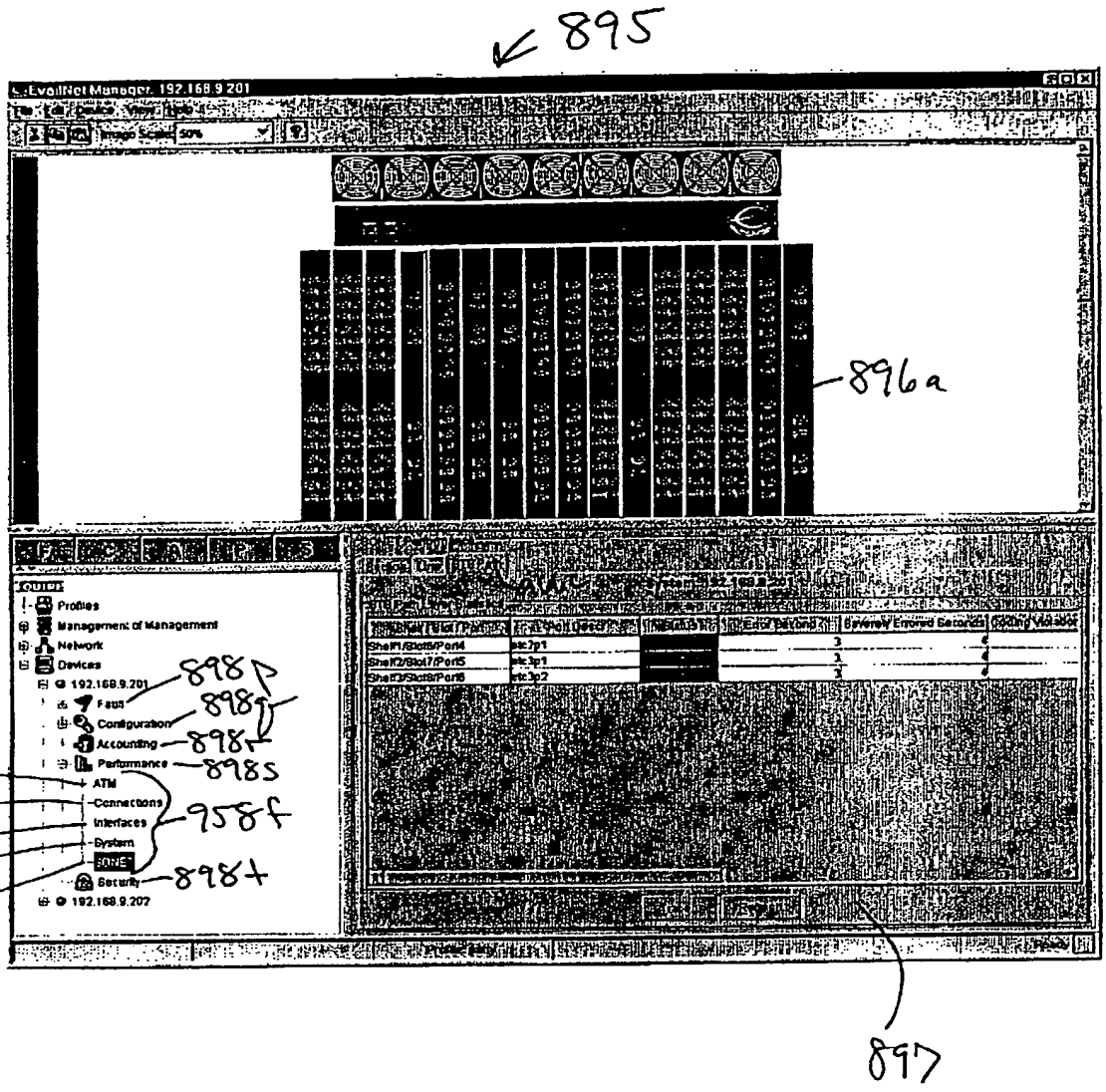
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Fig. 8c

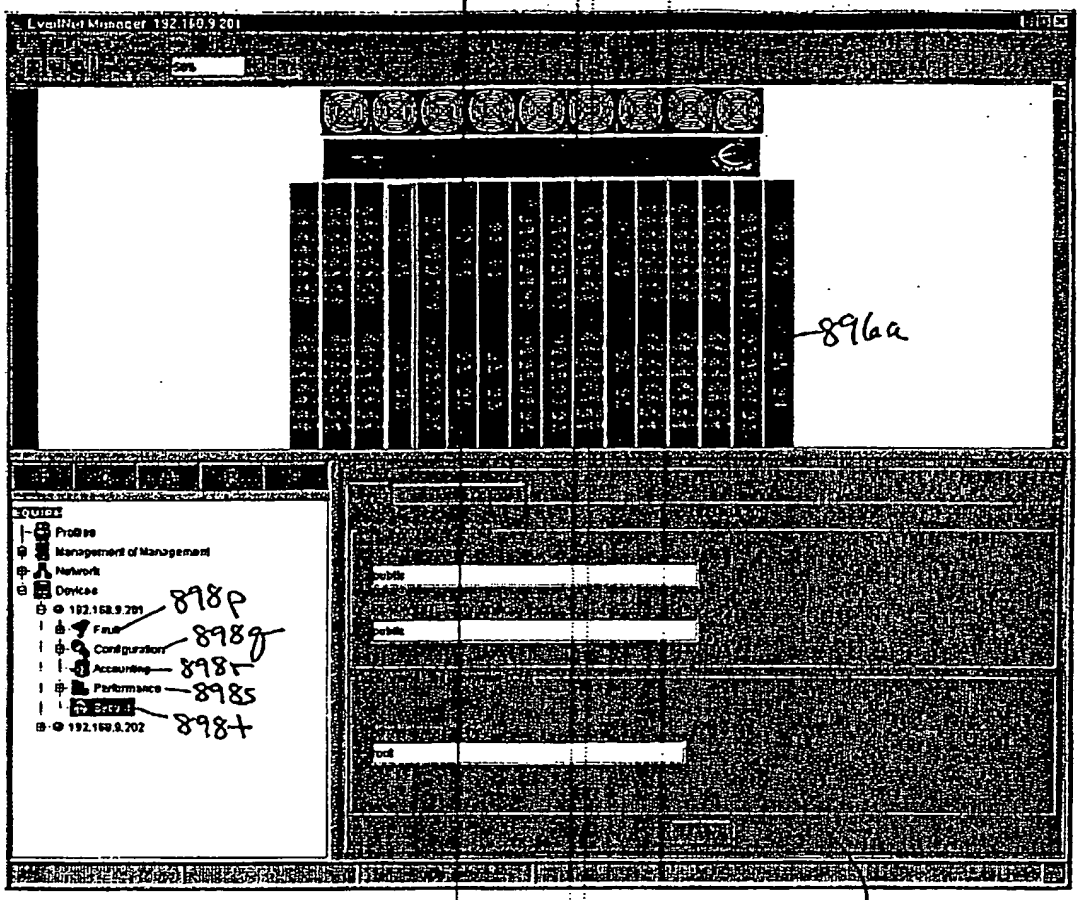


Fig. 8d

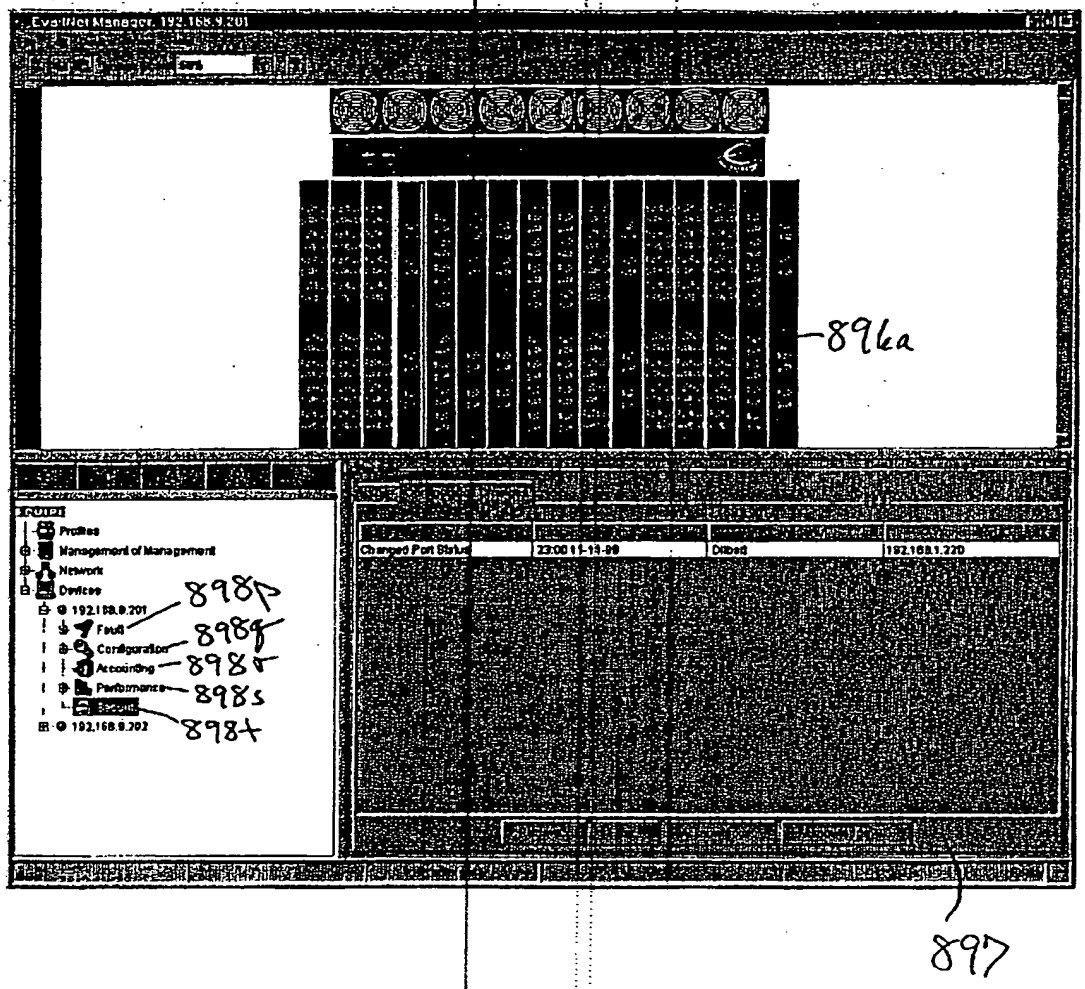


Fig. 8e

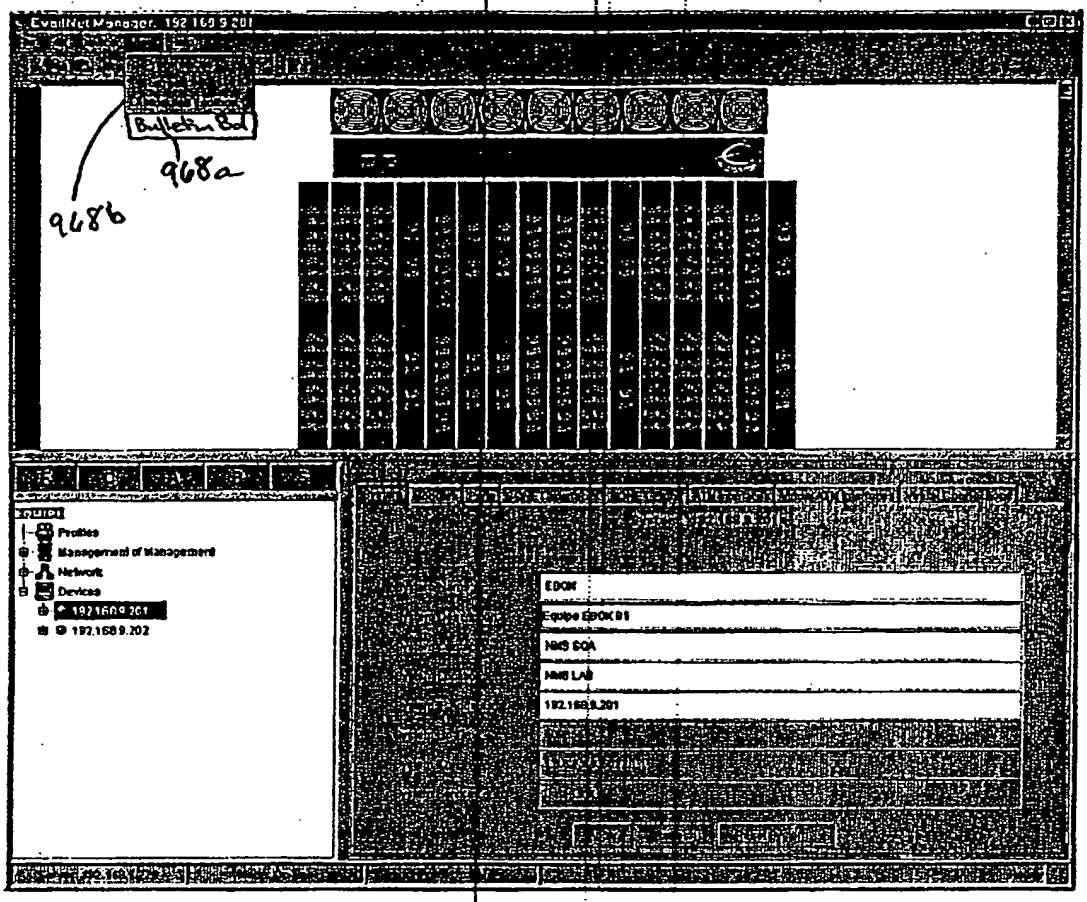


Fig. 9a

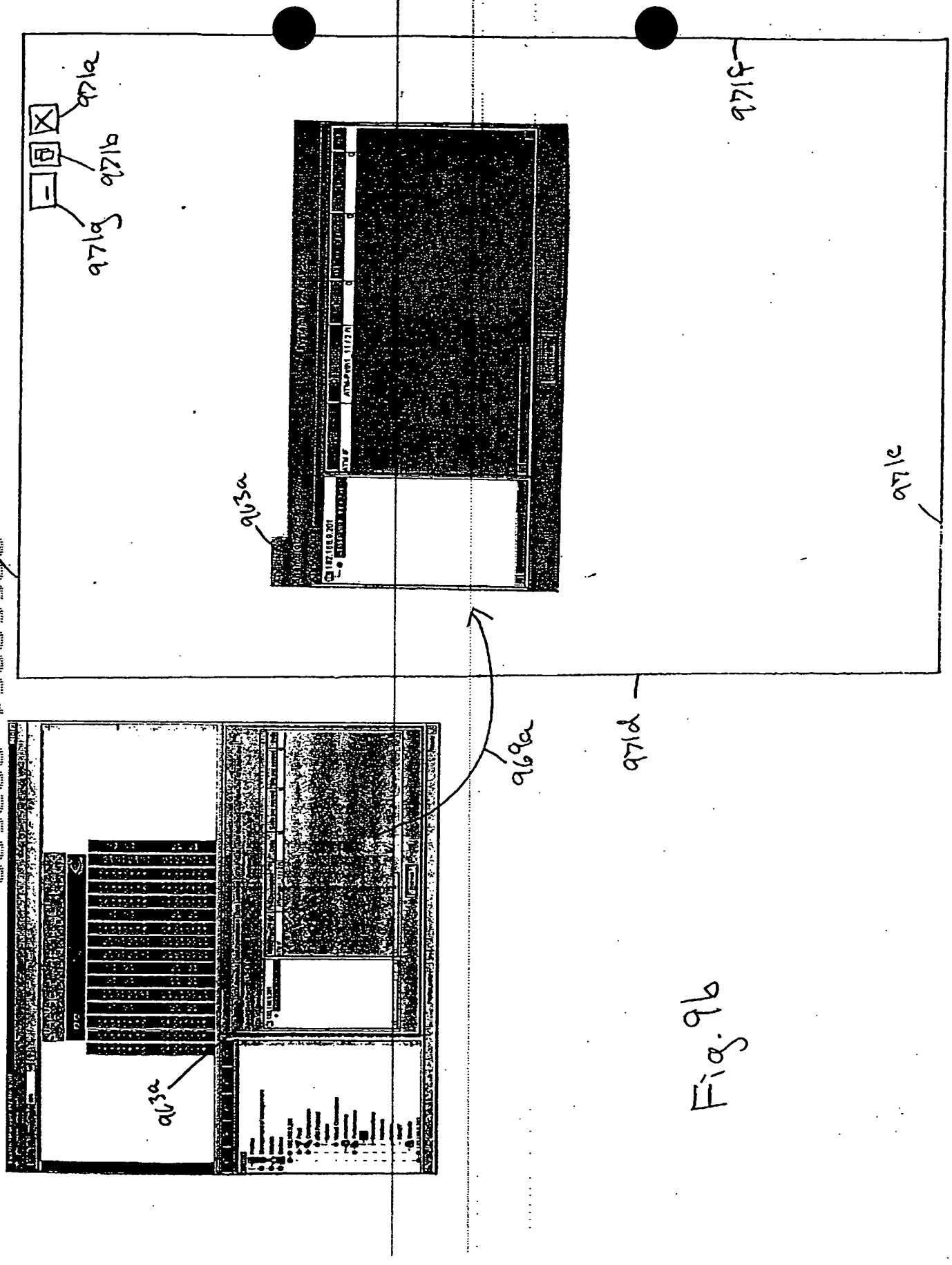


Fig. 9b

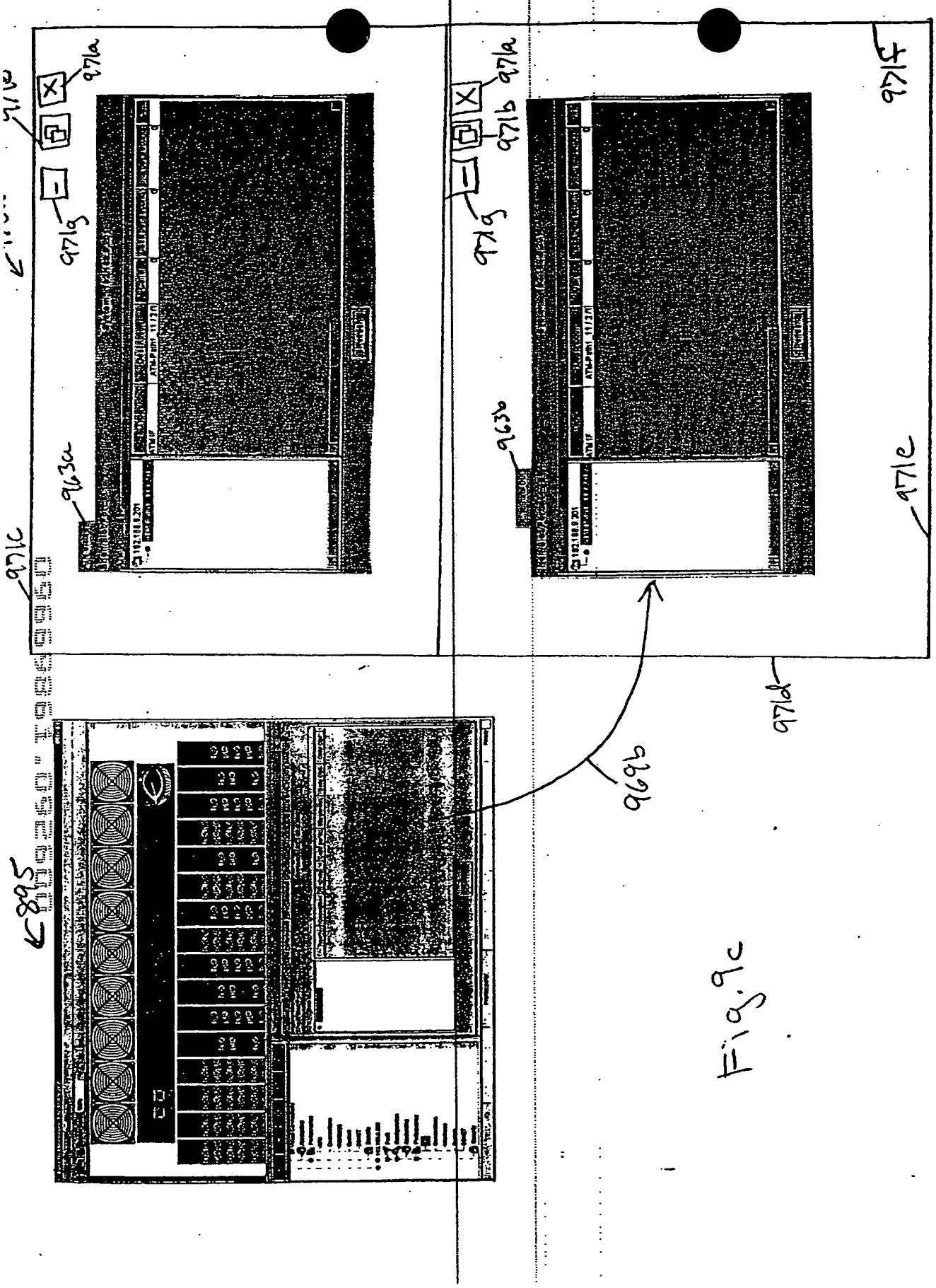


Fig. 9c

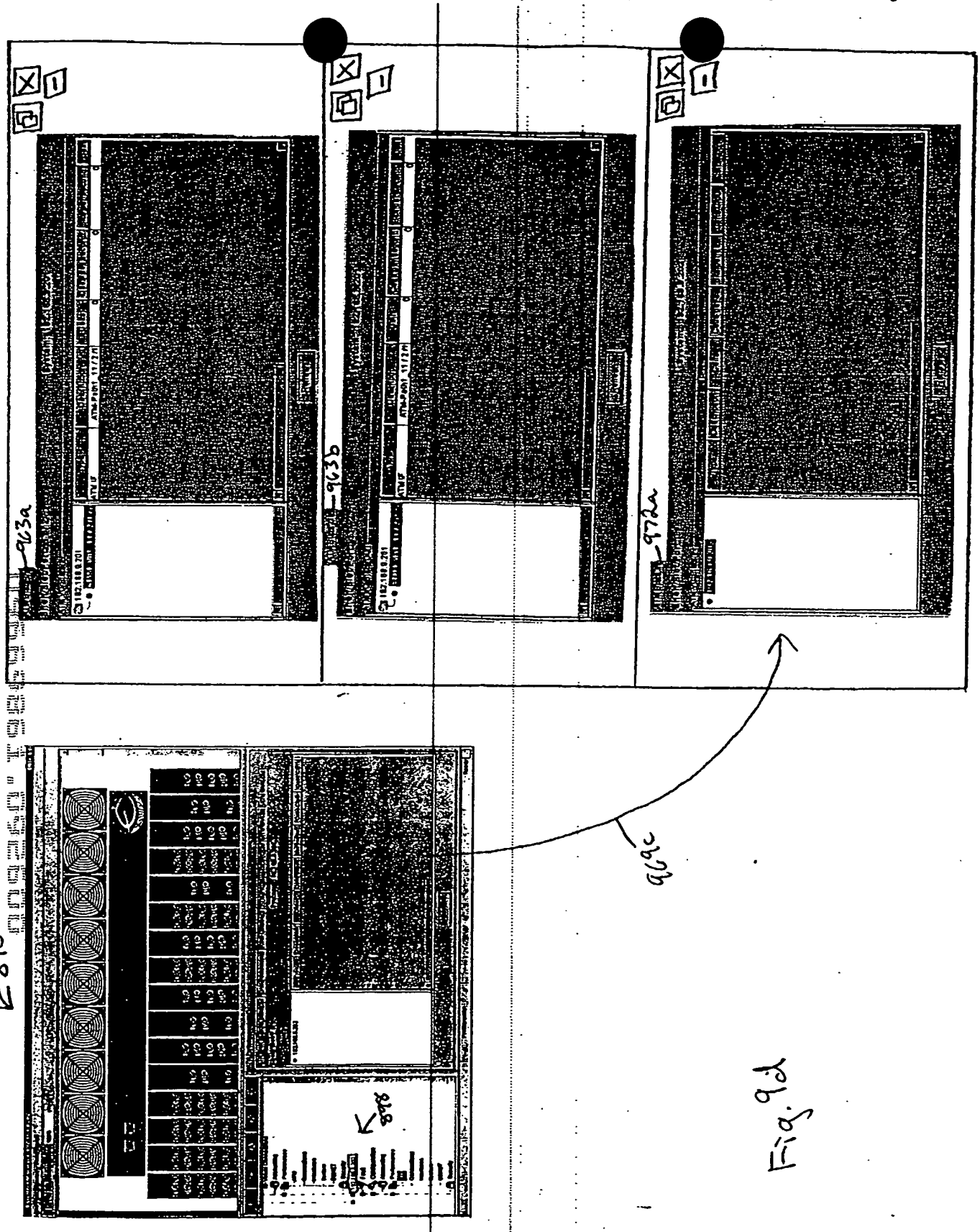


Fig. 9d

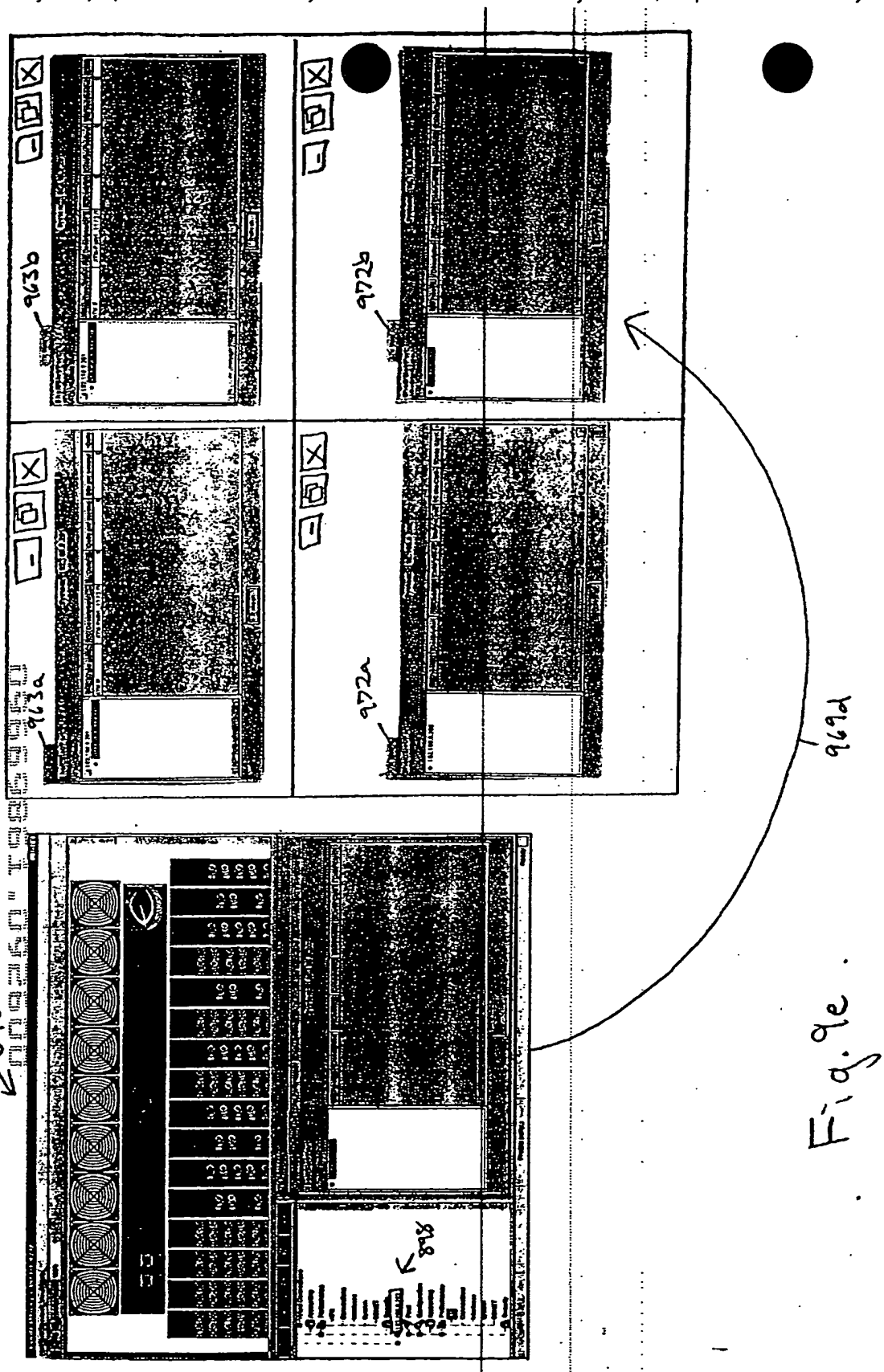


Fig. 9e

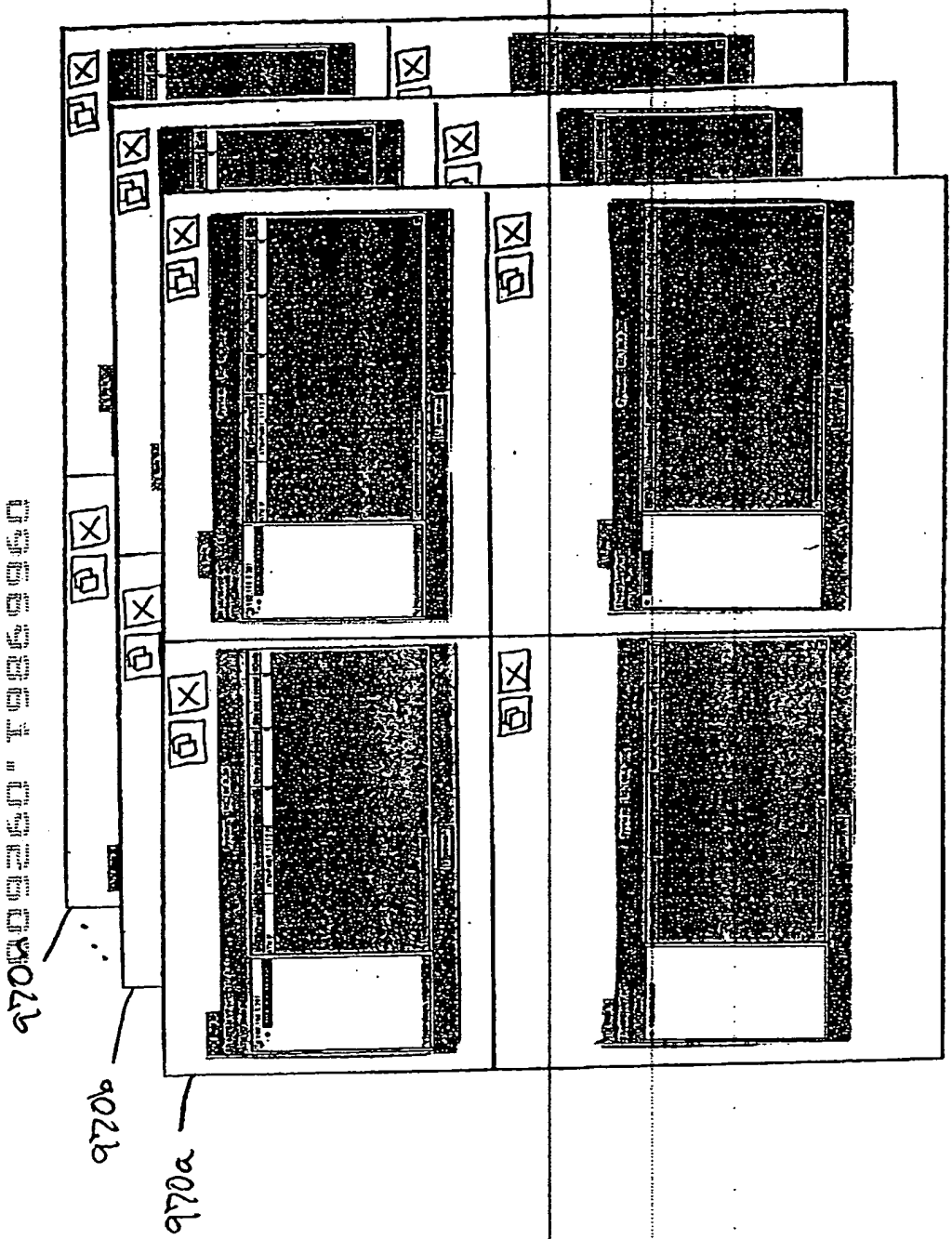


Fig. 9A

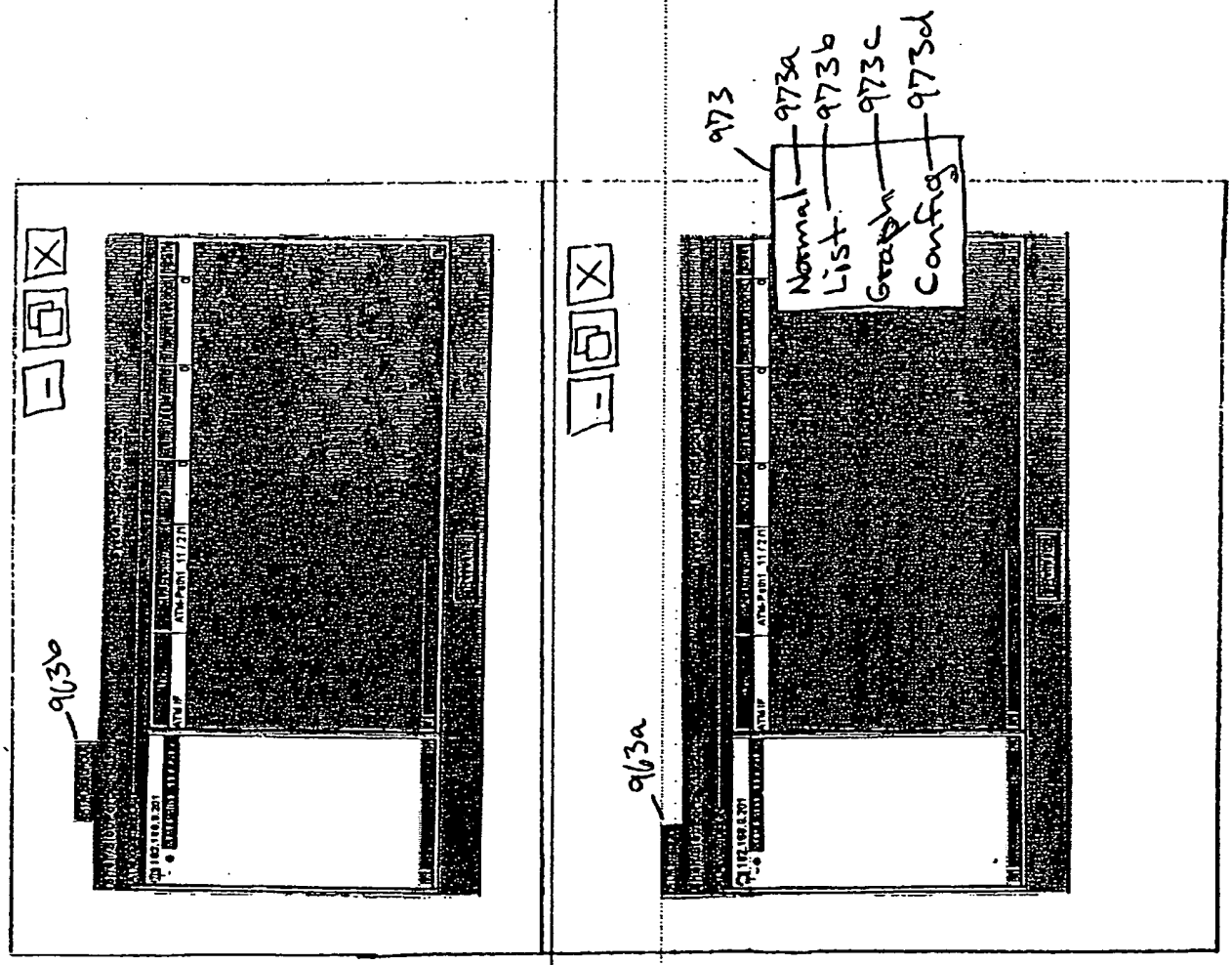

970a
963b
963a
973
973a
973b
973c
973d
Normal
List
Graph
Config

Fig. 9a

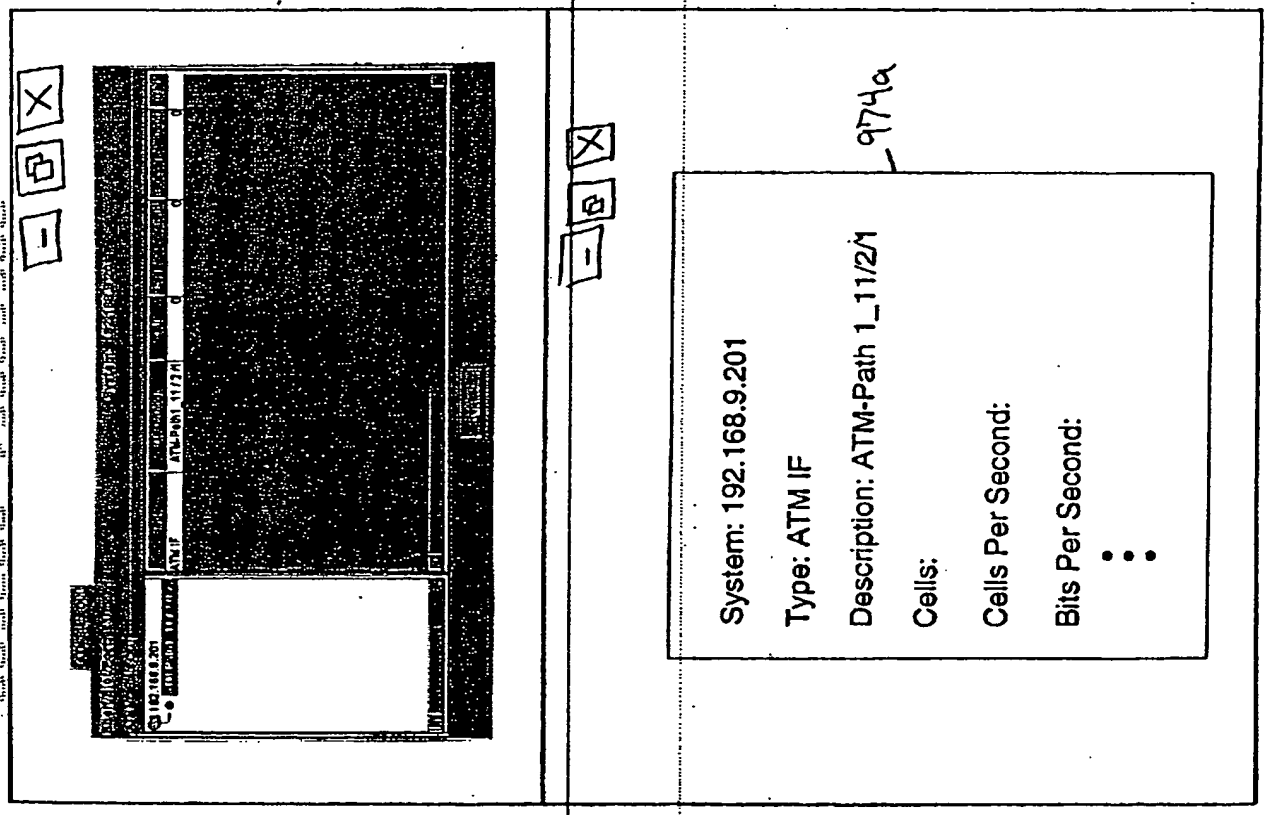

970a
974a
System: 192.168.9.201
Type: ATM IF
Description: ATM-Path 1_11/2/1
Cells:
Cells Per Second:
Bits Per Second:
...

Fig. 9h

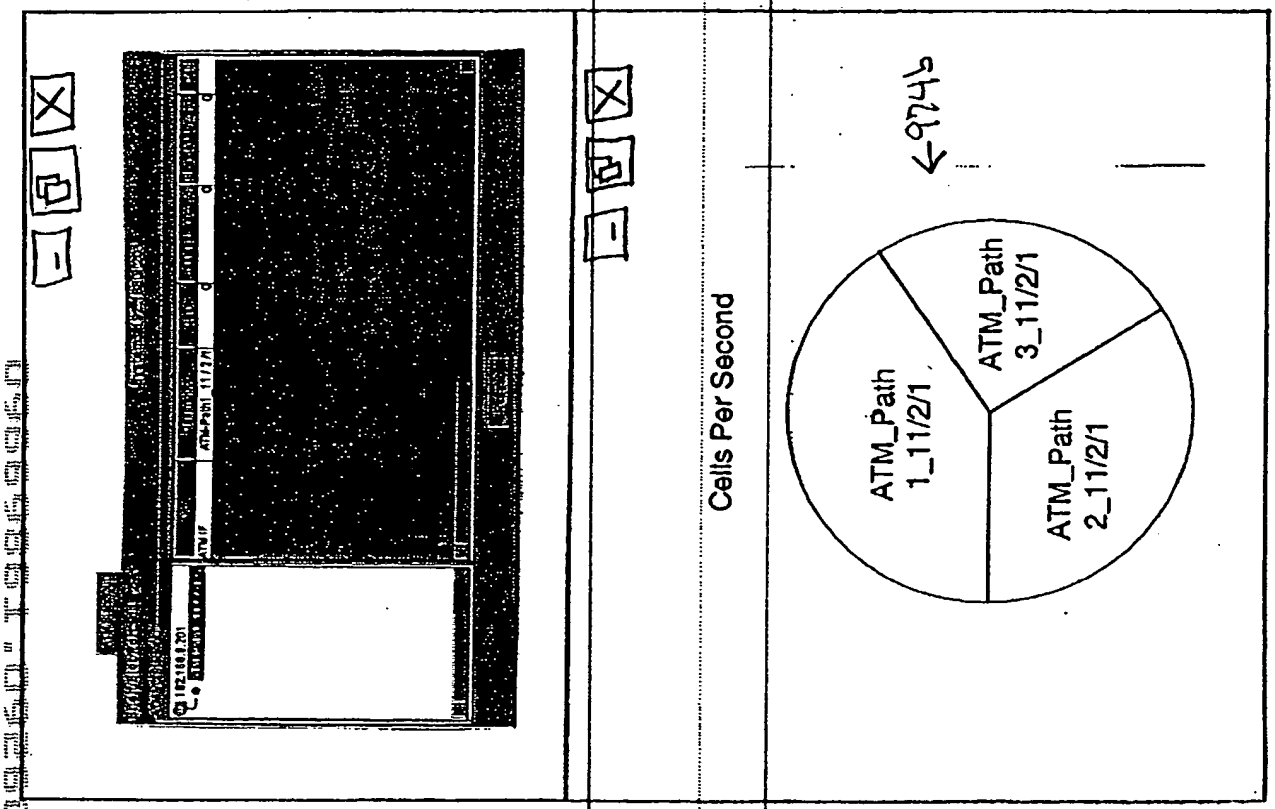

Cells Per Second
ATM_Path 1_11/2/1
ATM_Path 3_11/2/1
ATM_Path 2_11/2/1

Fig. 9

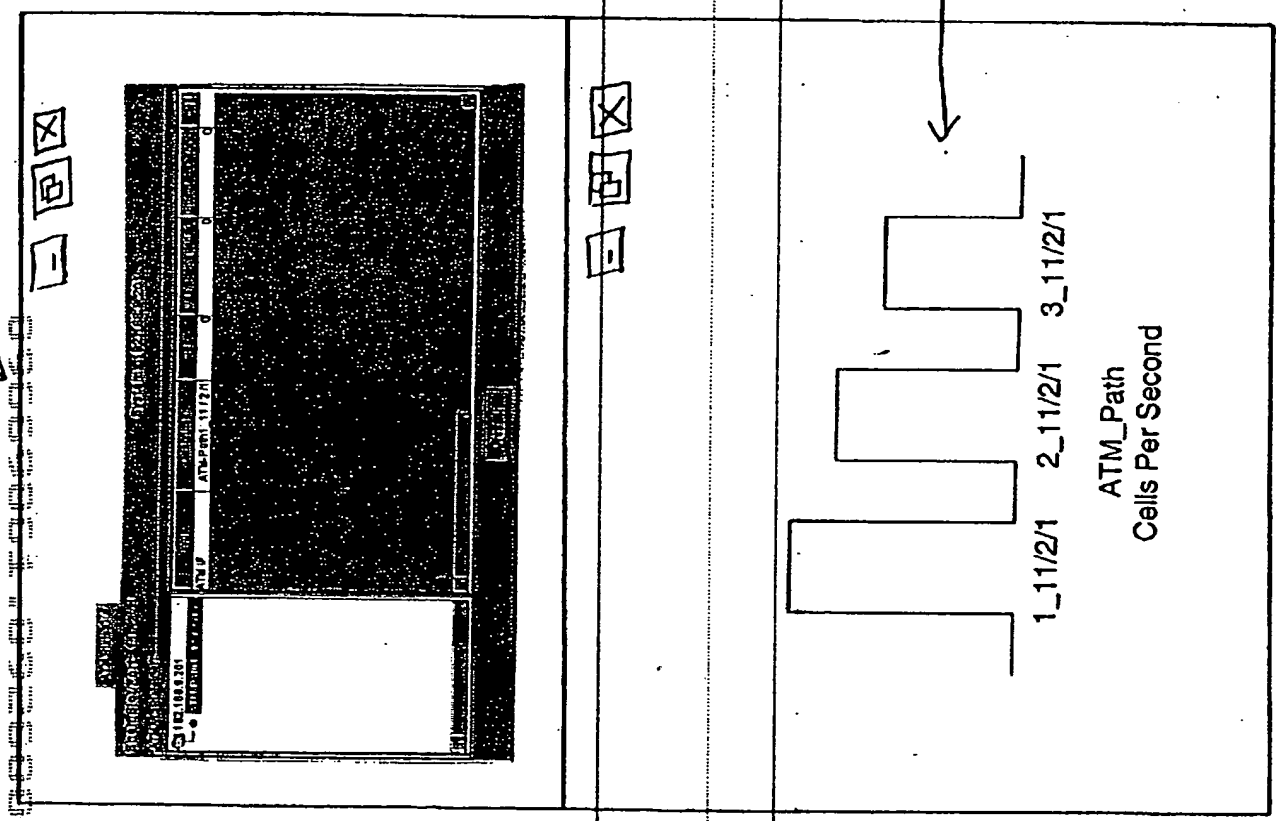
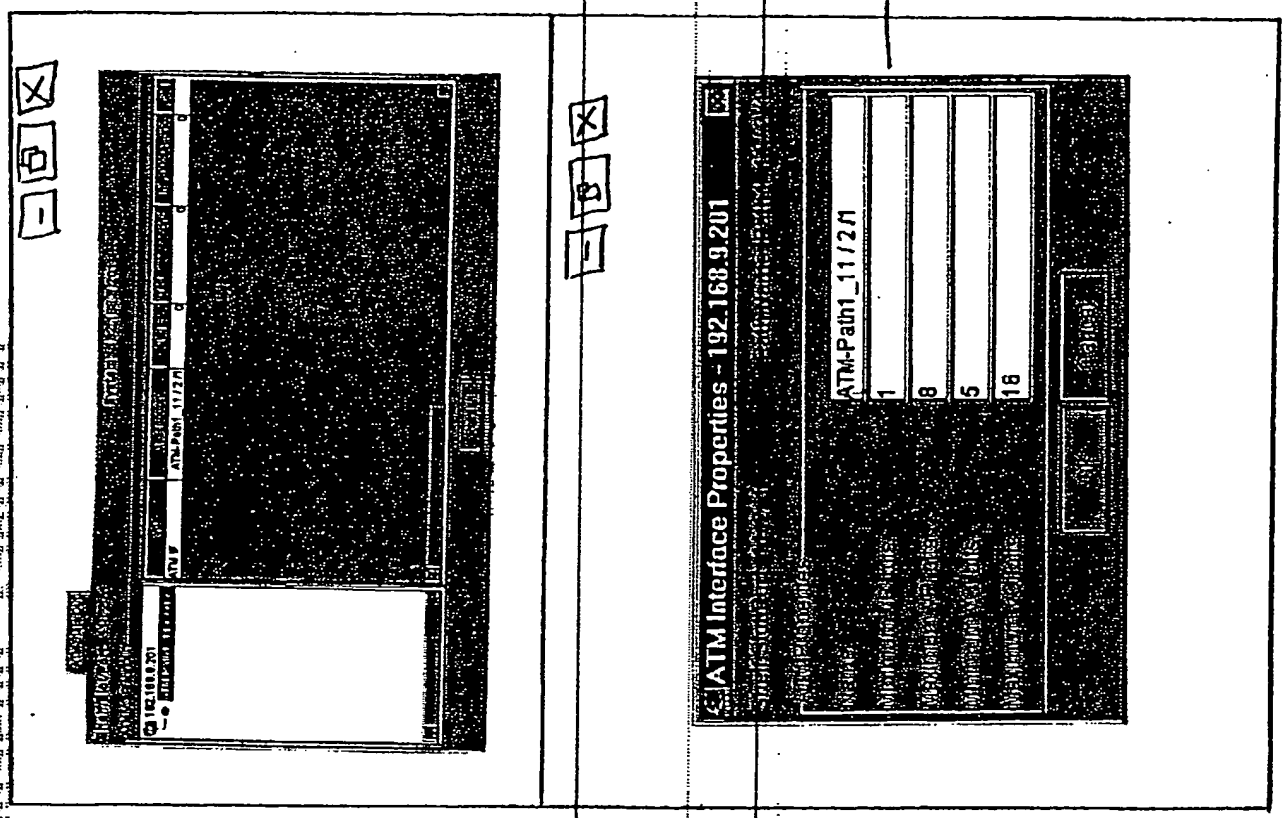


Fig. 9



9748

Fig. 9K

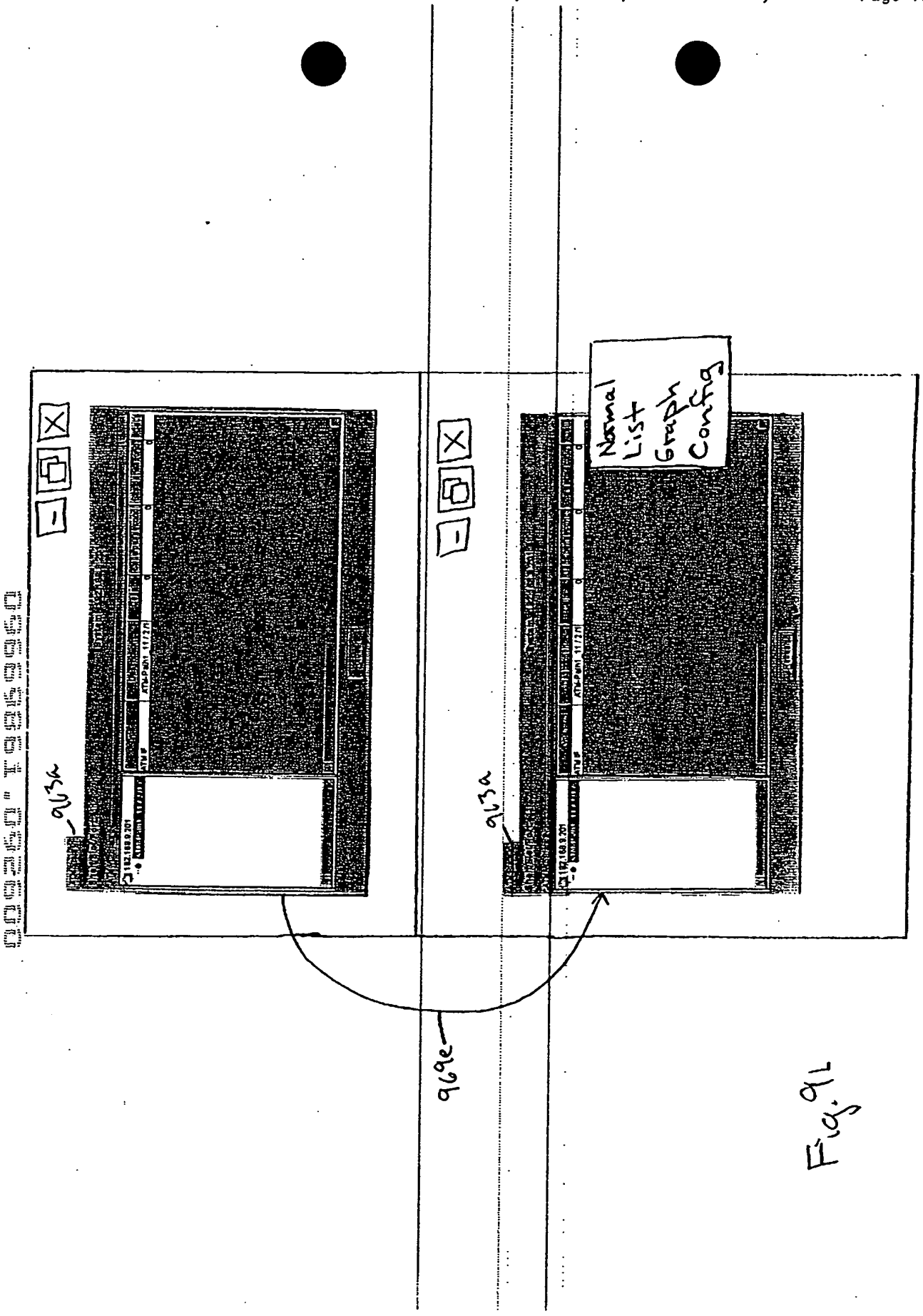


Fig. 9L

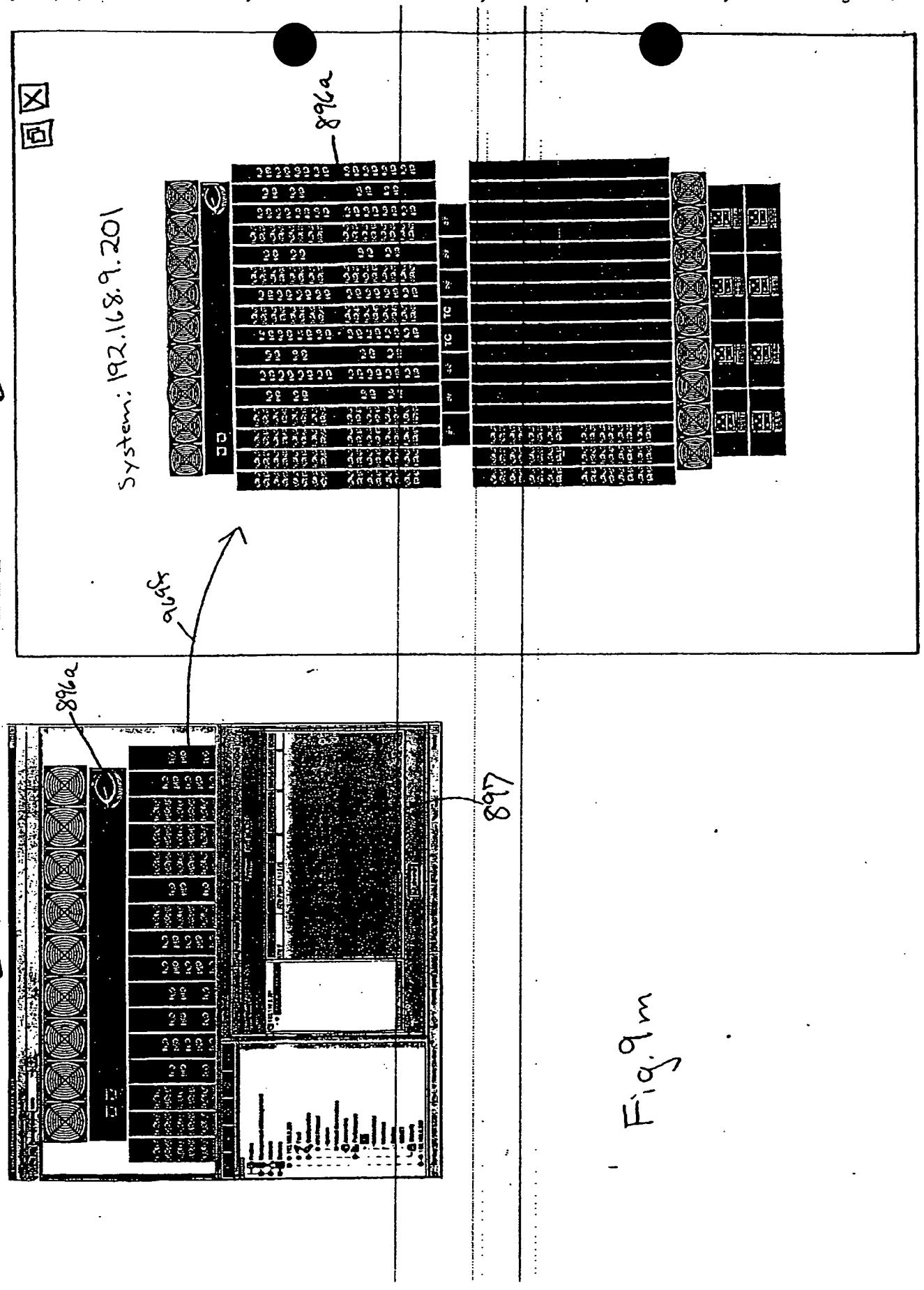


Fig. 9m

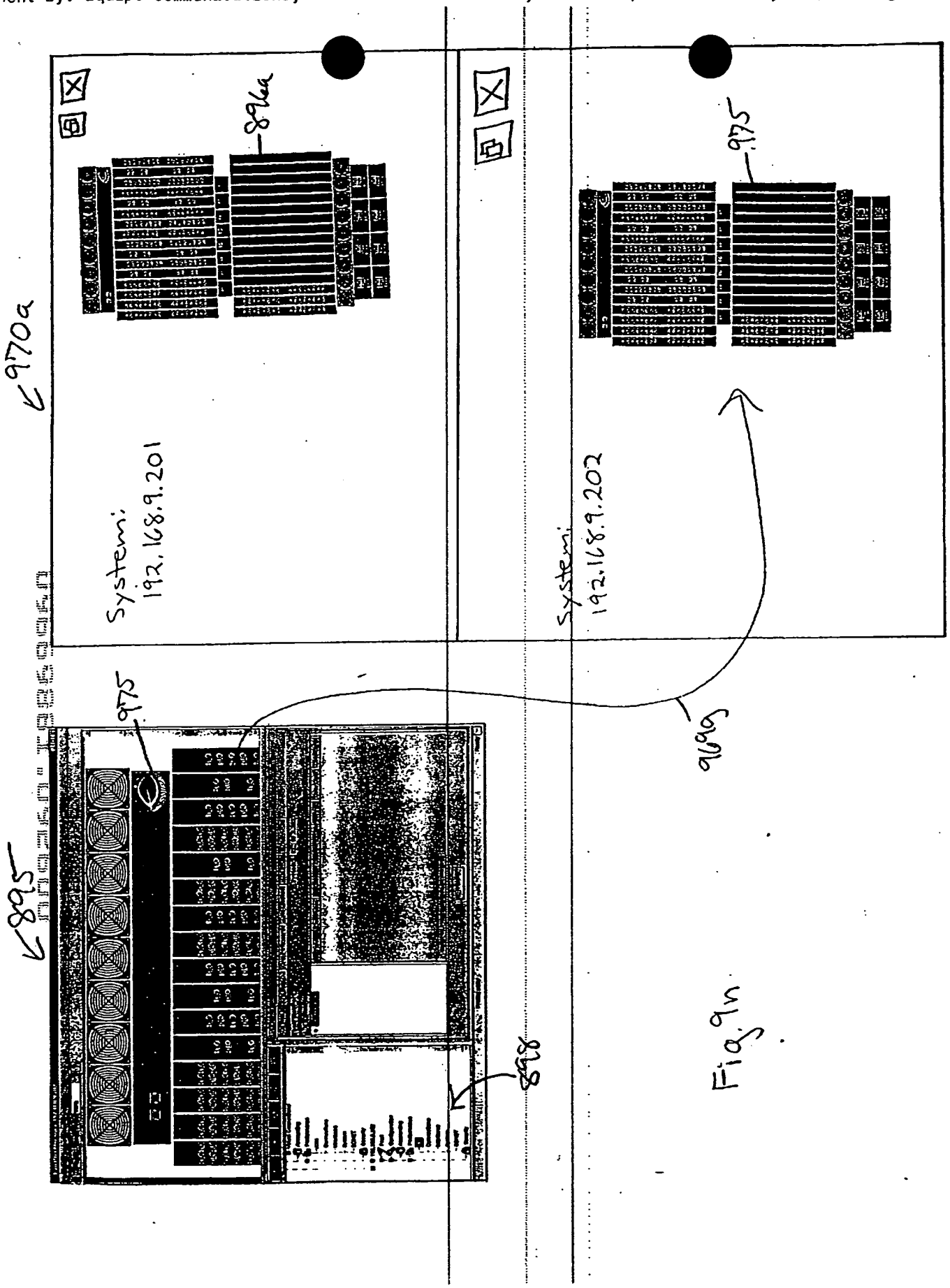

970a
System:
192.168.9.201
System:
192.168.9.202
975
975
975
995
998

Fig. 9n

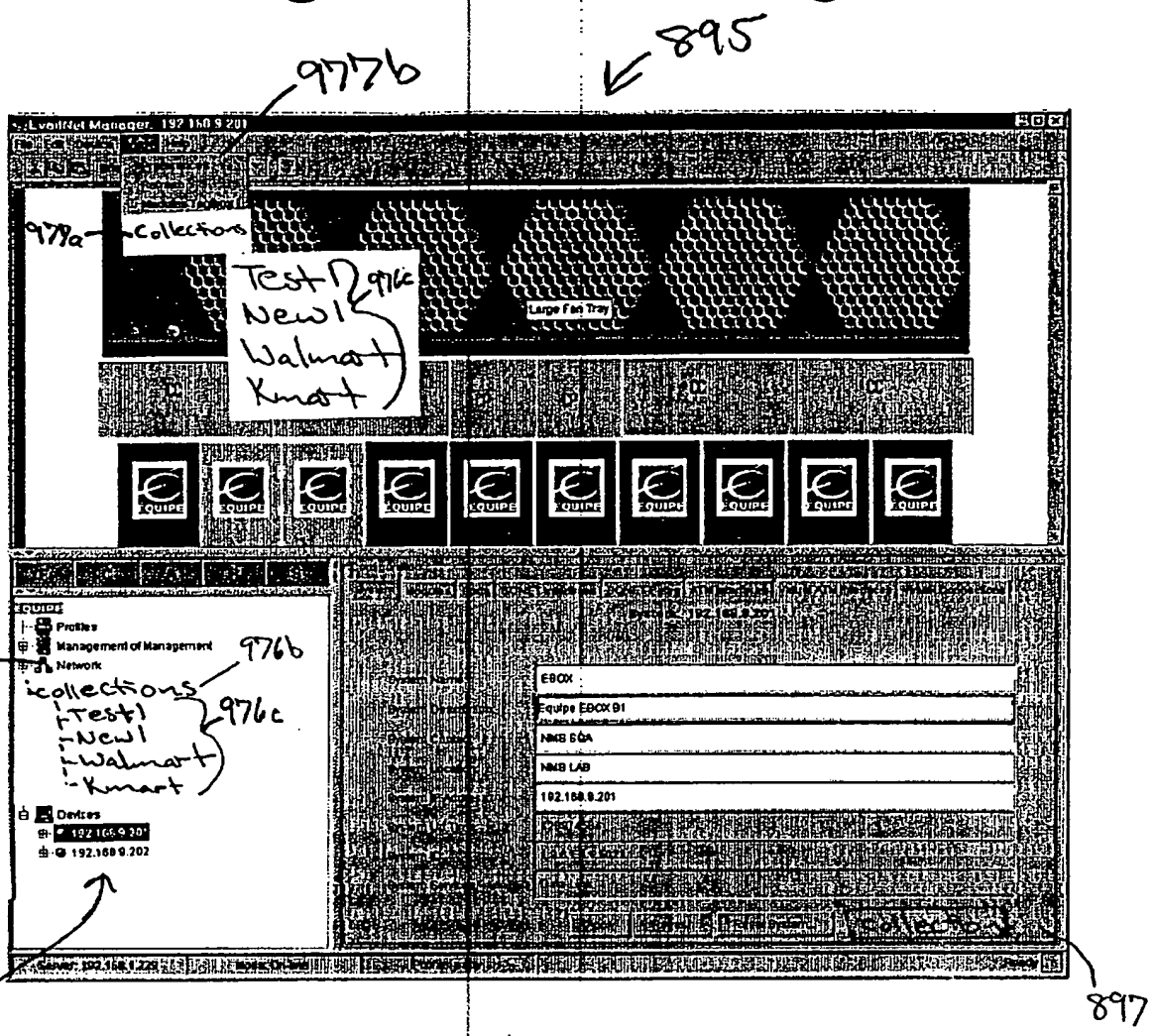


Fig. 10a

3030304.030303

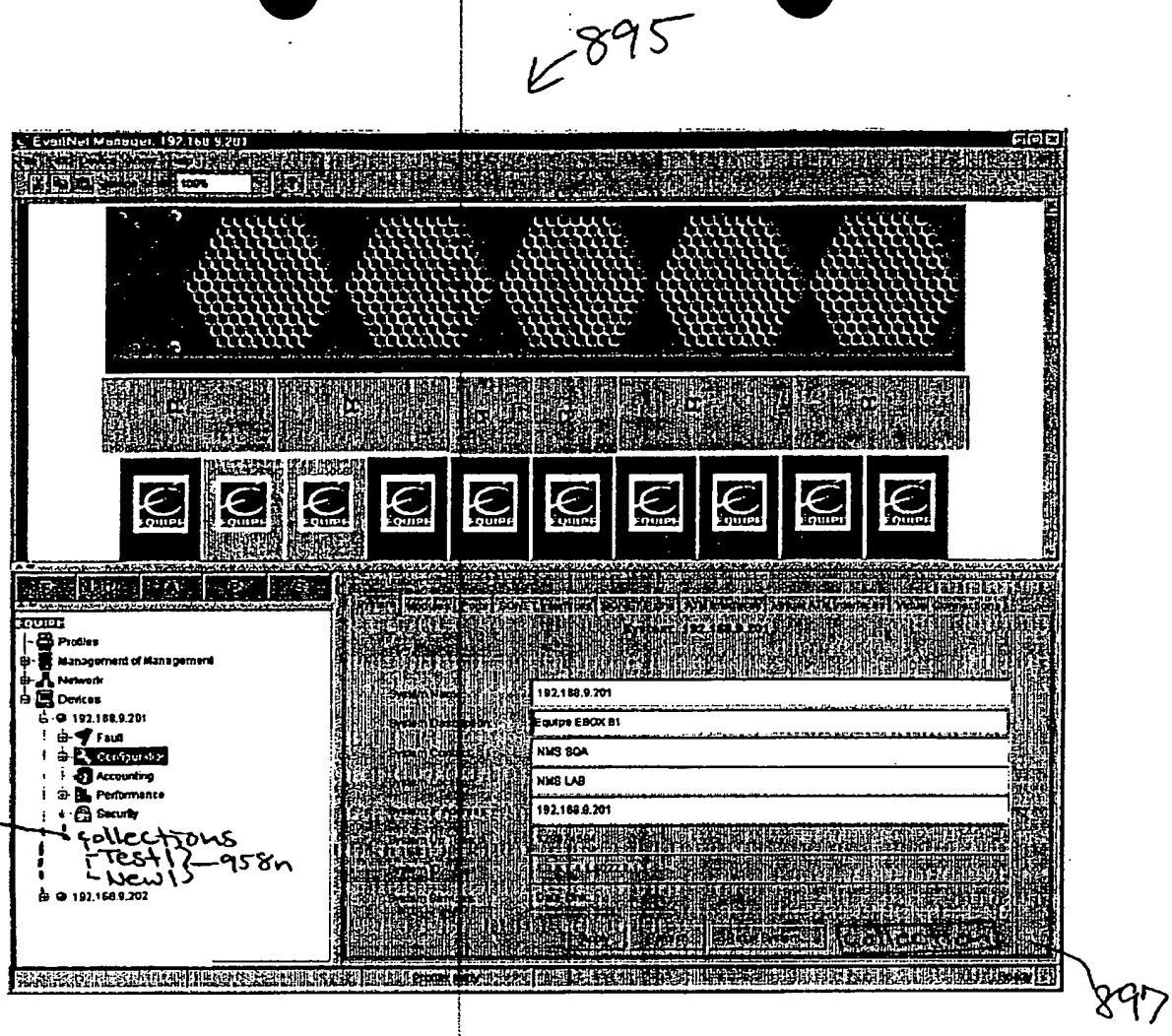

895
Profiles
Management of Management
Network
Devices
192.168.9.201
Fault
Configuration
Accounting
Performance
Security
collections
Test1
New13
958m
958n
192.168.9.202
192.168.9.201
Equipe EBOX B1
NMS SOA
NMS LAB
192.168.9.201
897

Fig. 10b

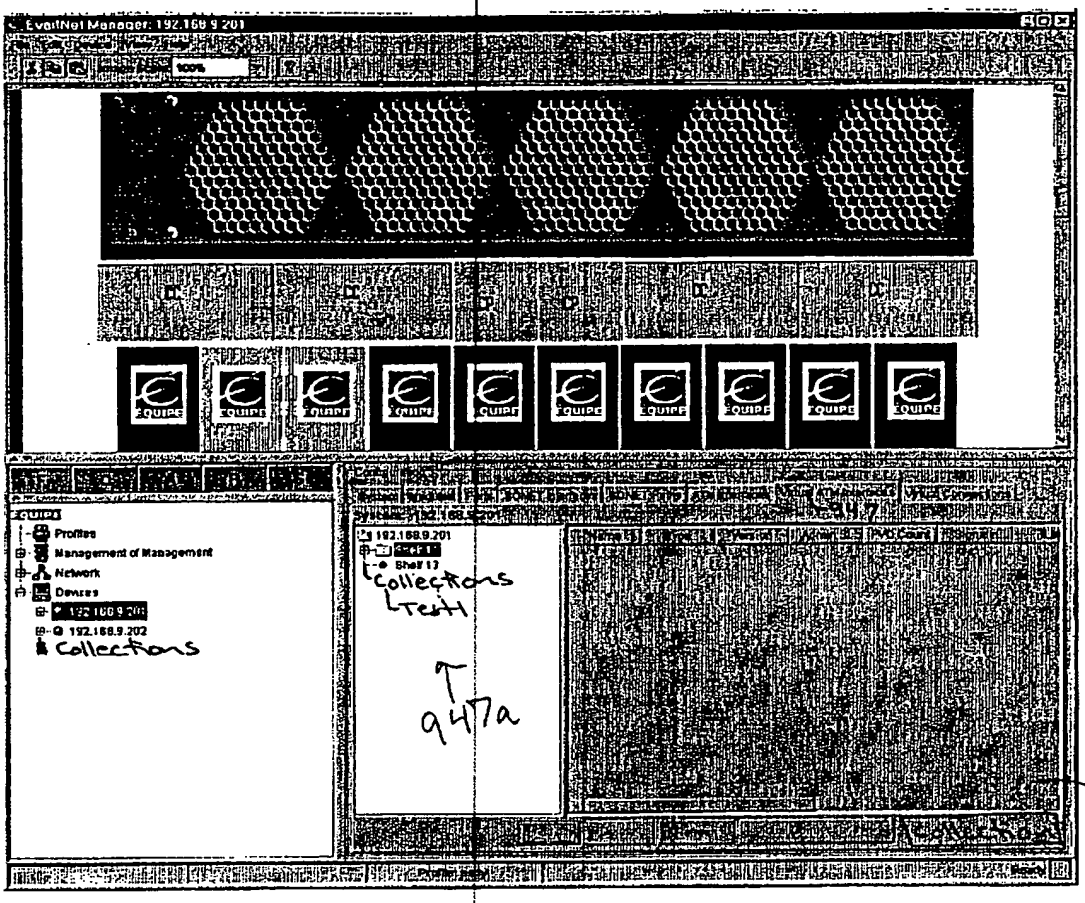


Fig. 10c

3505304.03503

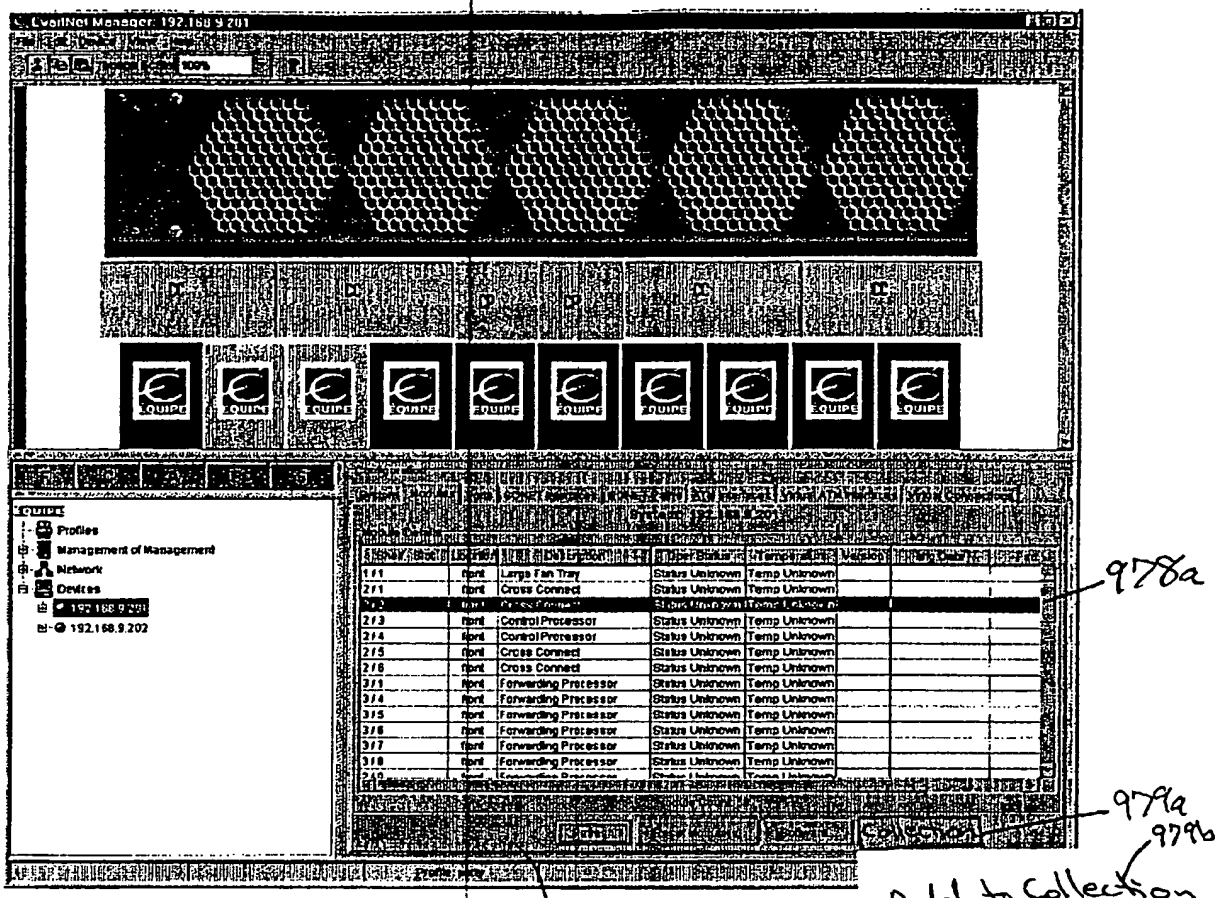


Fig. 10d

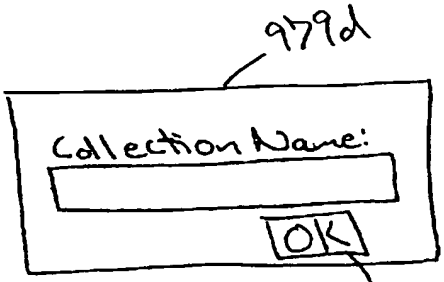


Fig. 10e

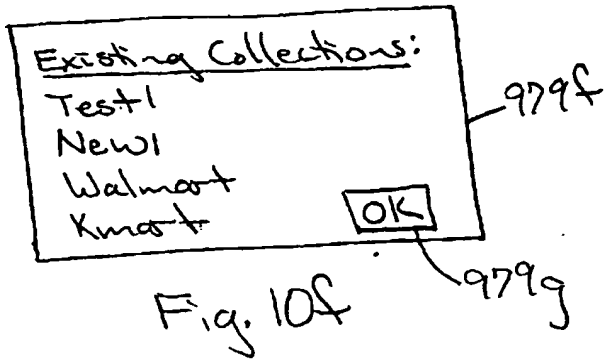


Fig. 10f

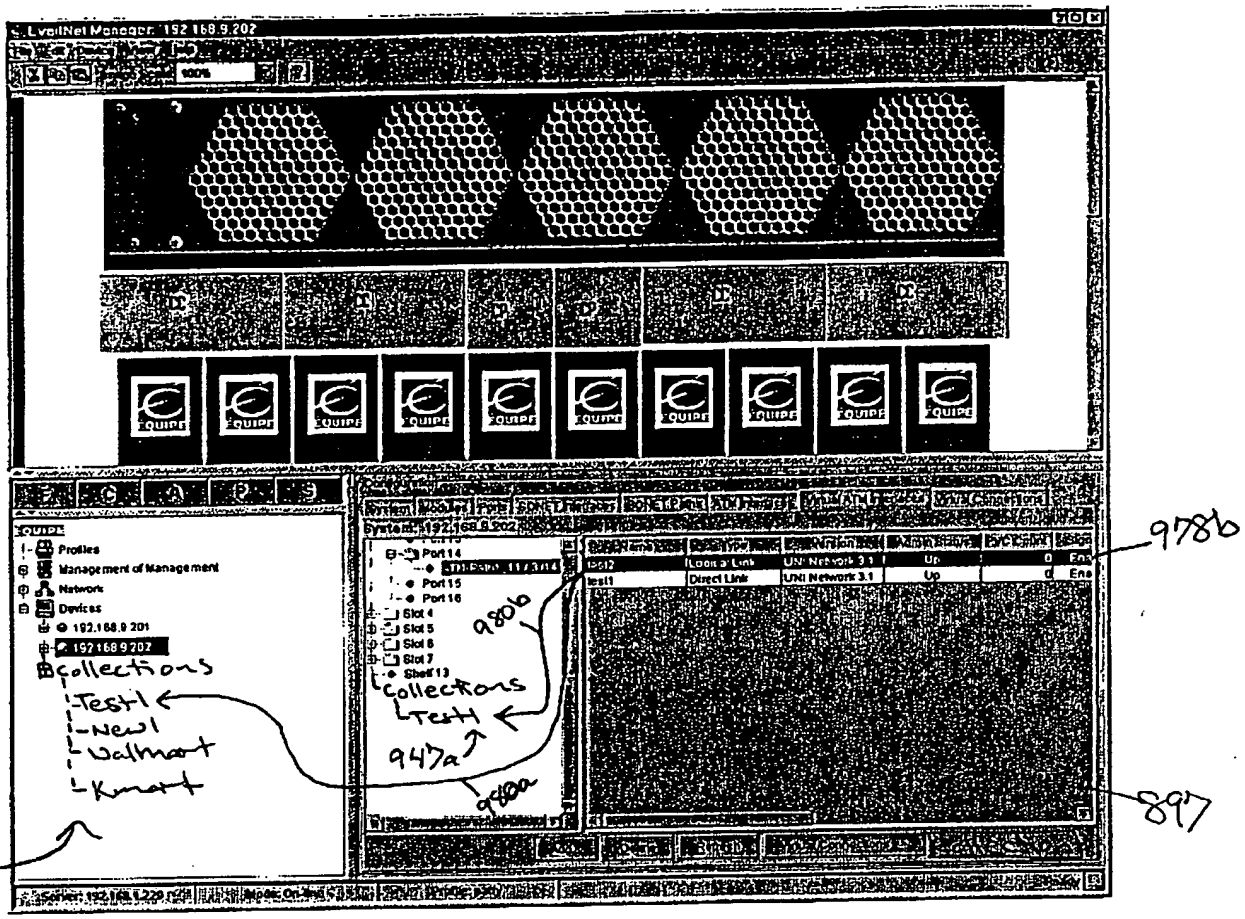

895
LightNet Manager 192.168.9.202
Profiles
Management of Management
Network
Devices
192.168.9.201
192.168.9.202
collections
Test
New
Walmart
Kmart
898
Port 14
Port 15
Port 16
Slot 4
Slot 5
Slot 6
Slot 7
Shelf 13
collections
Test
947a
980a
978b
897

Fig. 10g

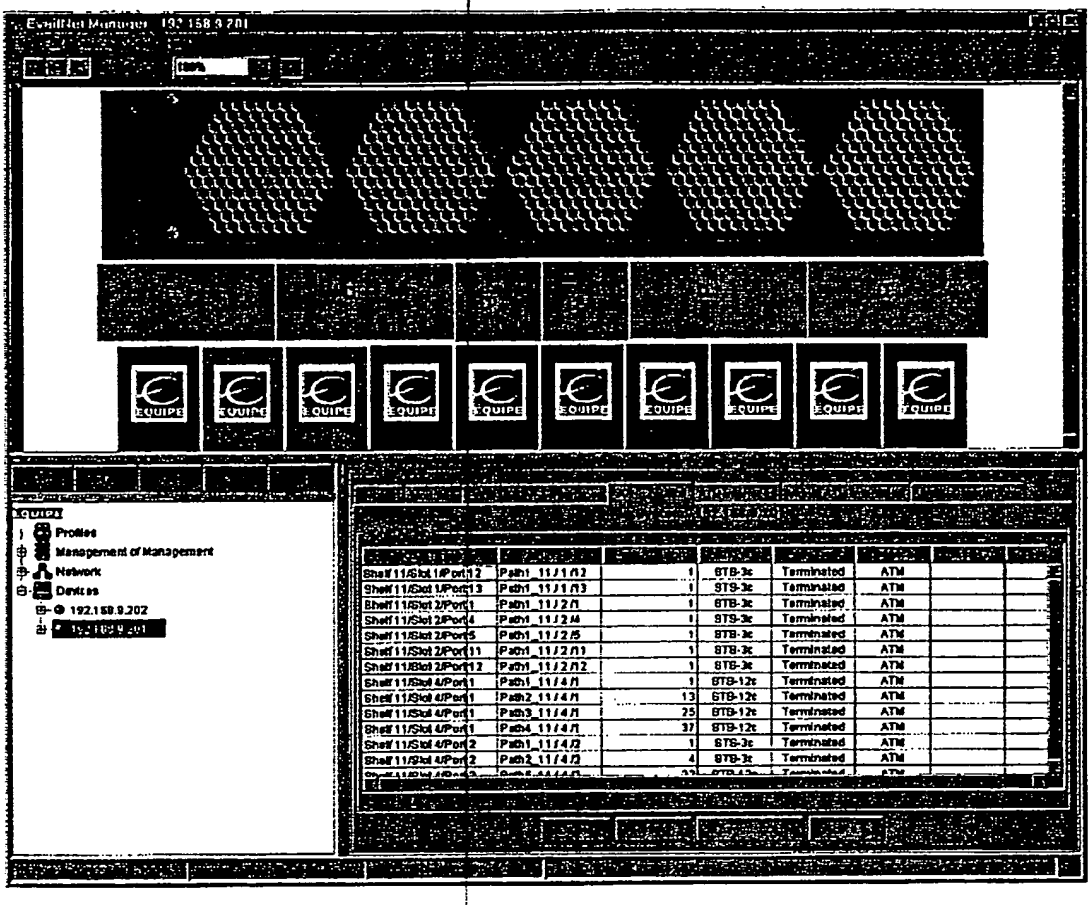

Profiles
Management of Management
Network
Devices
192.168.9.202

Fig. 10h

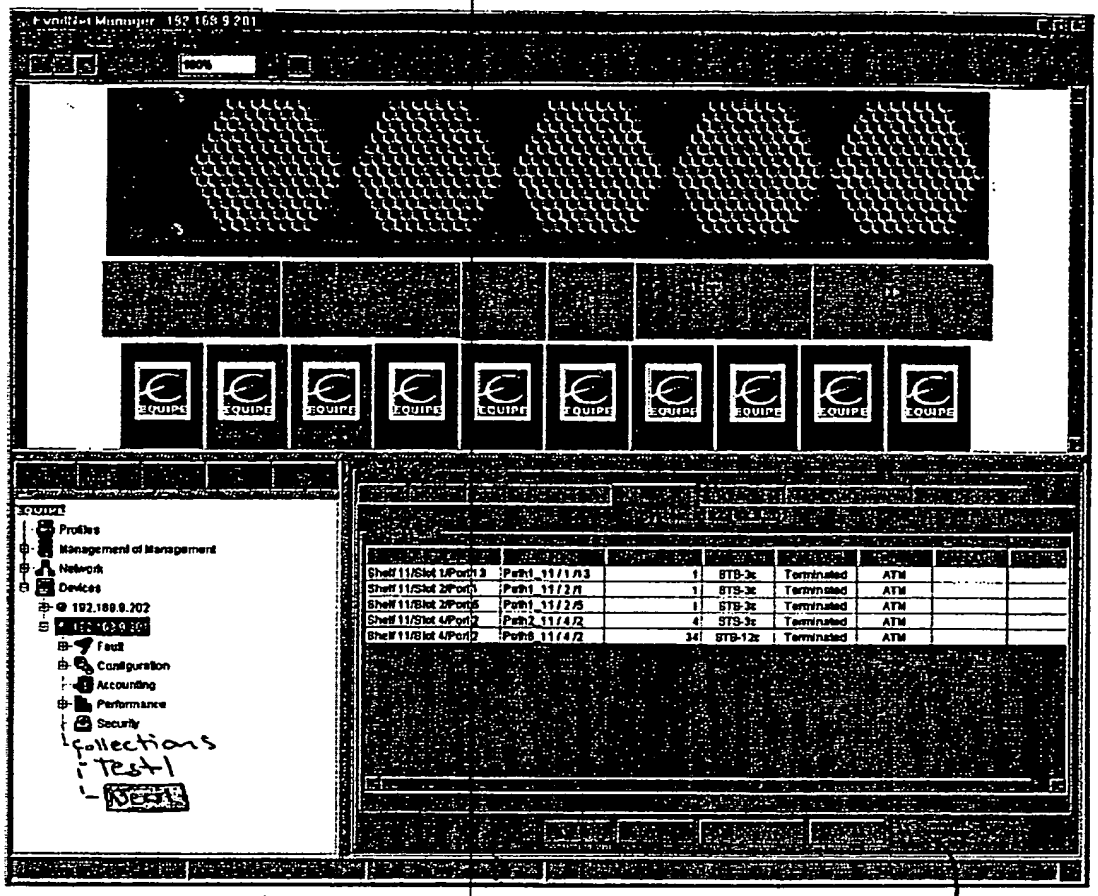


Fig. 10i

Confidential - Equipe

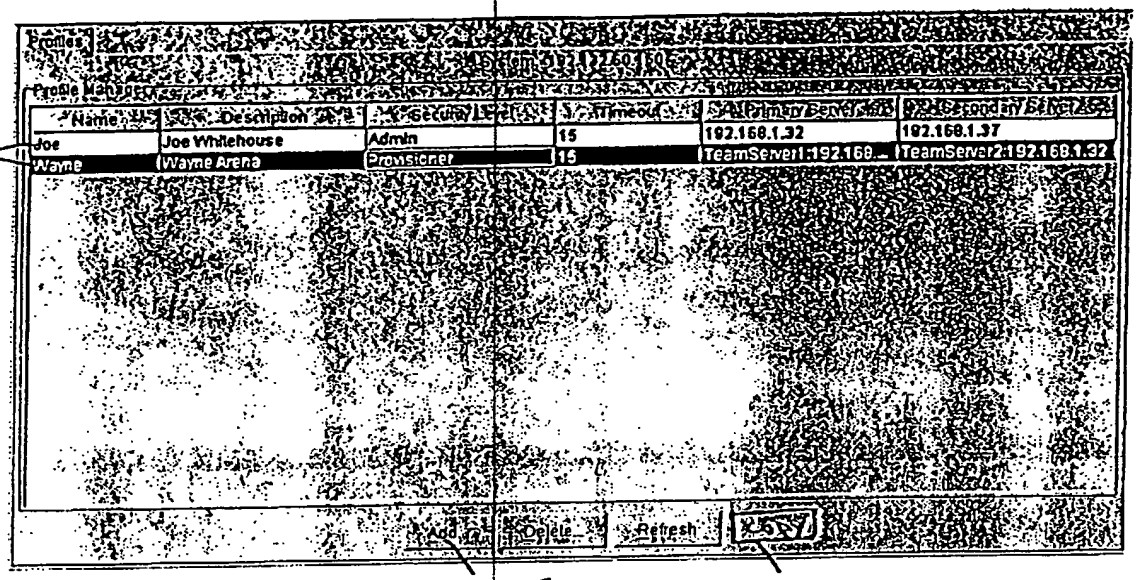


Fig. 11a

0960904.0960803

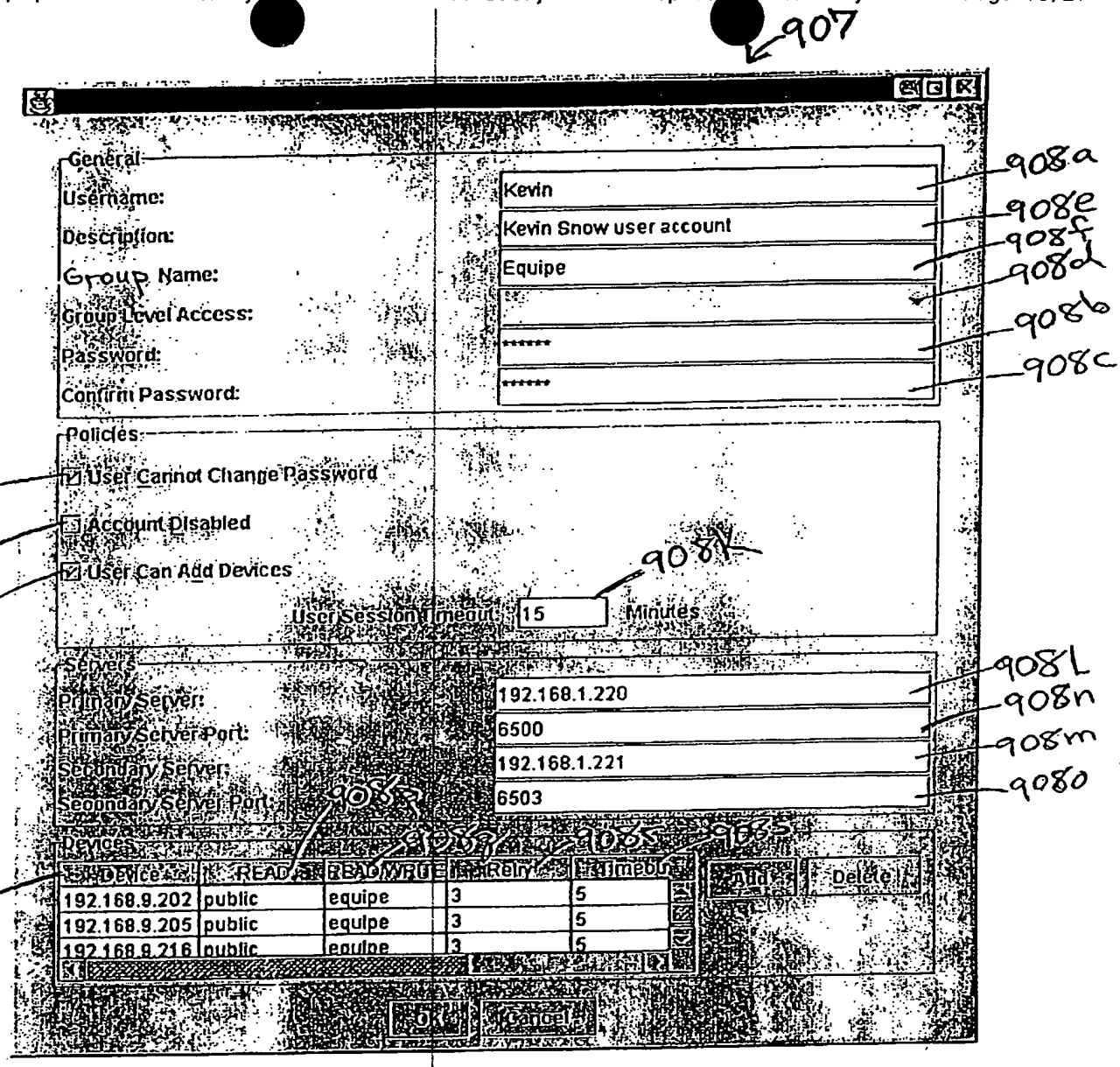

907
General
Username:
Kevin
908a
Description:
Kevin Snow user account
908e
Group Name:
Equipe
908f
Group Level Access:
908d
Password:
908b
Confirm Password:
908c
Policies
User Cannot Change Password
908a
Account Disabled
908i
User Can Add Devices
908j
User Session Timeout:
15
Minutes
908k
Servers
Primary Server:
192.168.1.220
908l
Primary Server Port:
6500
908n
Secondary Server:
192.168.1.221
908m
Secondary Server Port:
6503
908o
Devices
908p
908q
908r
908s
908t
Device
READ
READ/WRITE
Retry
Timeout
Add
Delete
192.168.9.202
public
equipe
3
5
192.168.9.205
public
equipe
3
5
192.168.9.216
public
equipe
3
5
908g
OK
Cancel

Fig. 11b

Fig. 11c

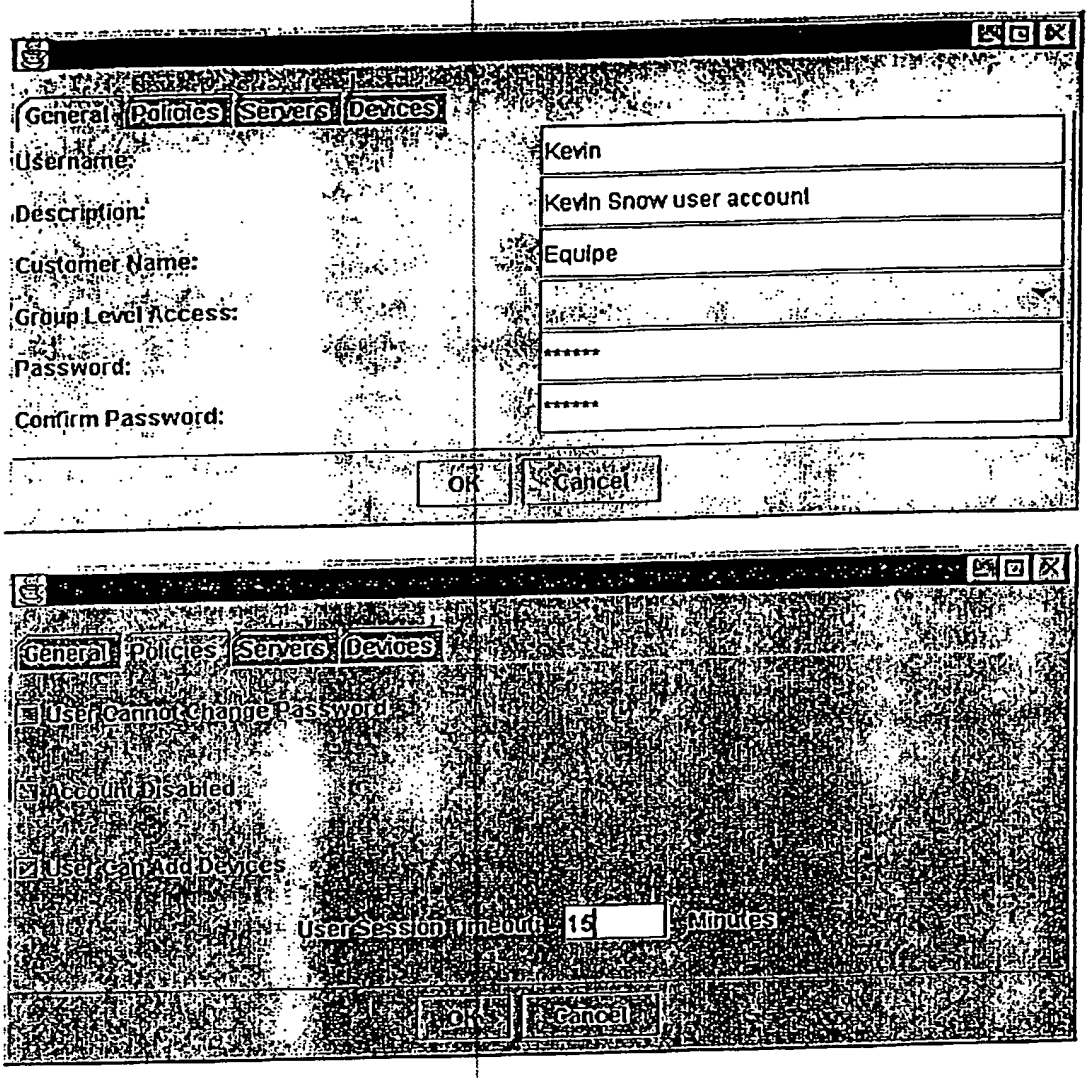
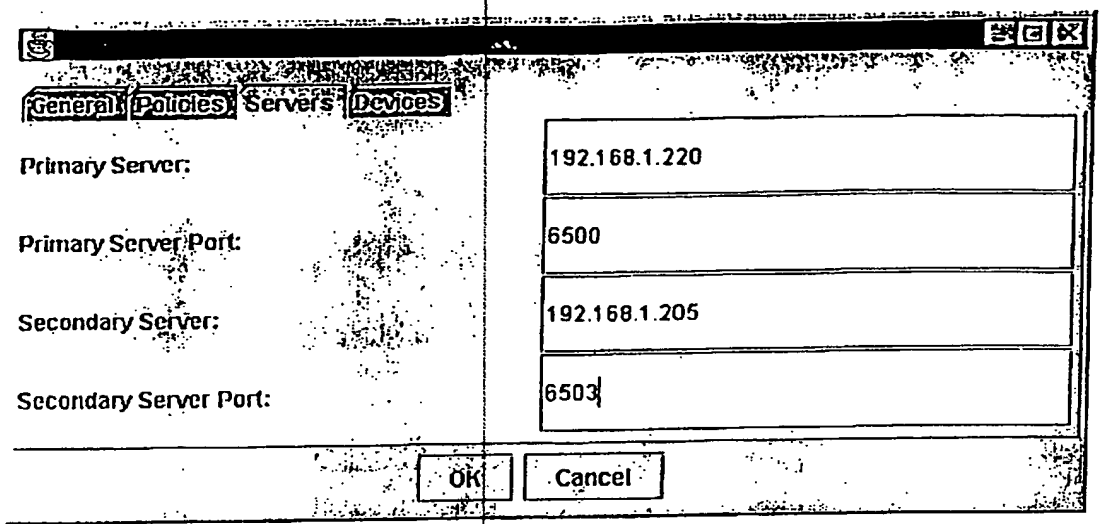


Exhibit - 2350

Figure



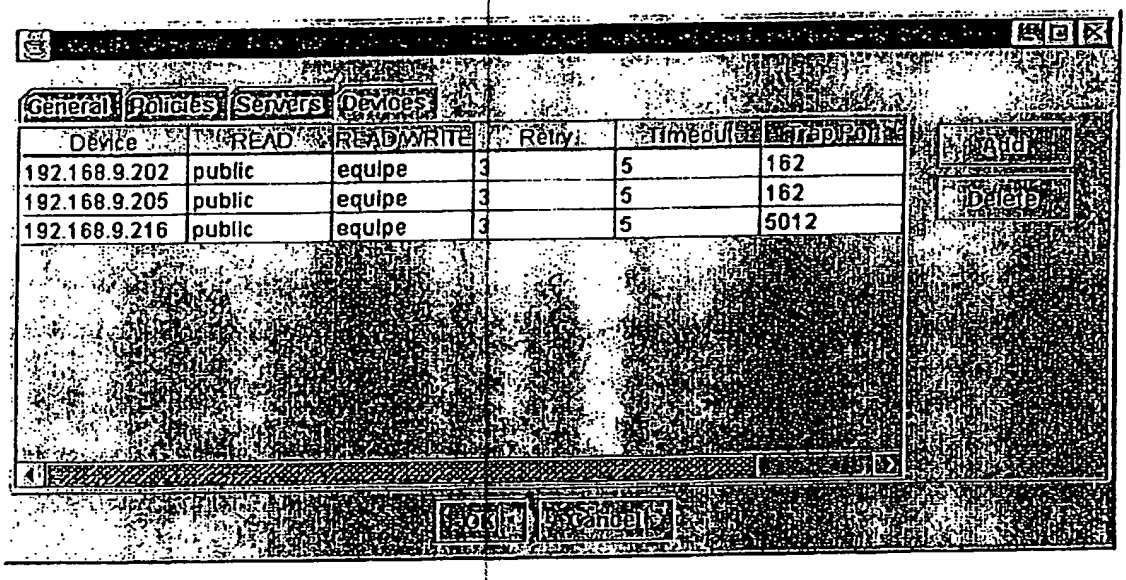


Fig. 11f

09050504-090600

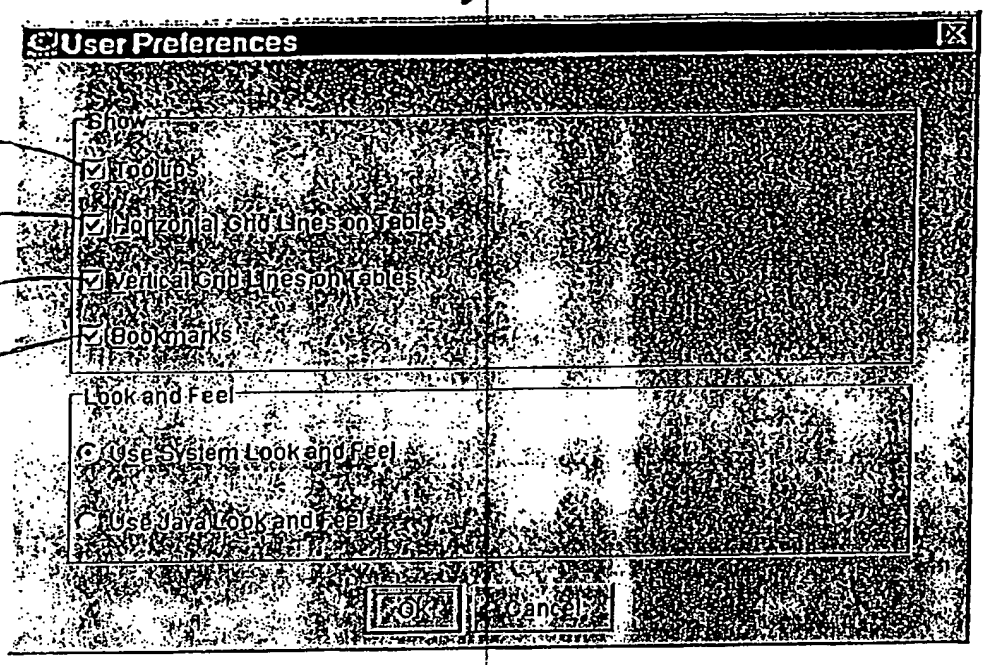
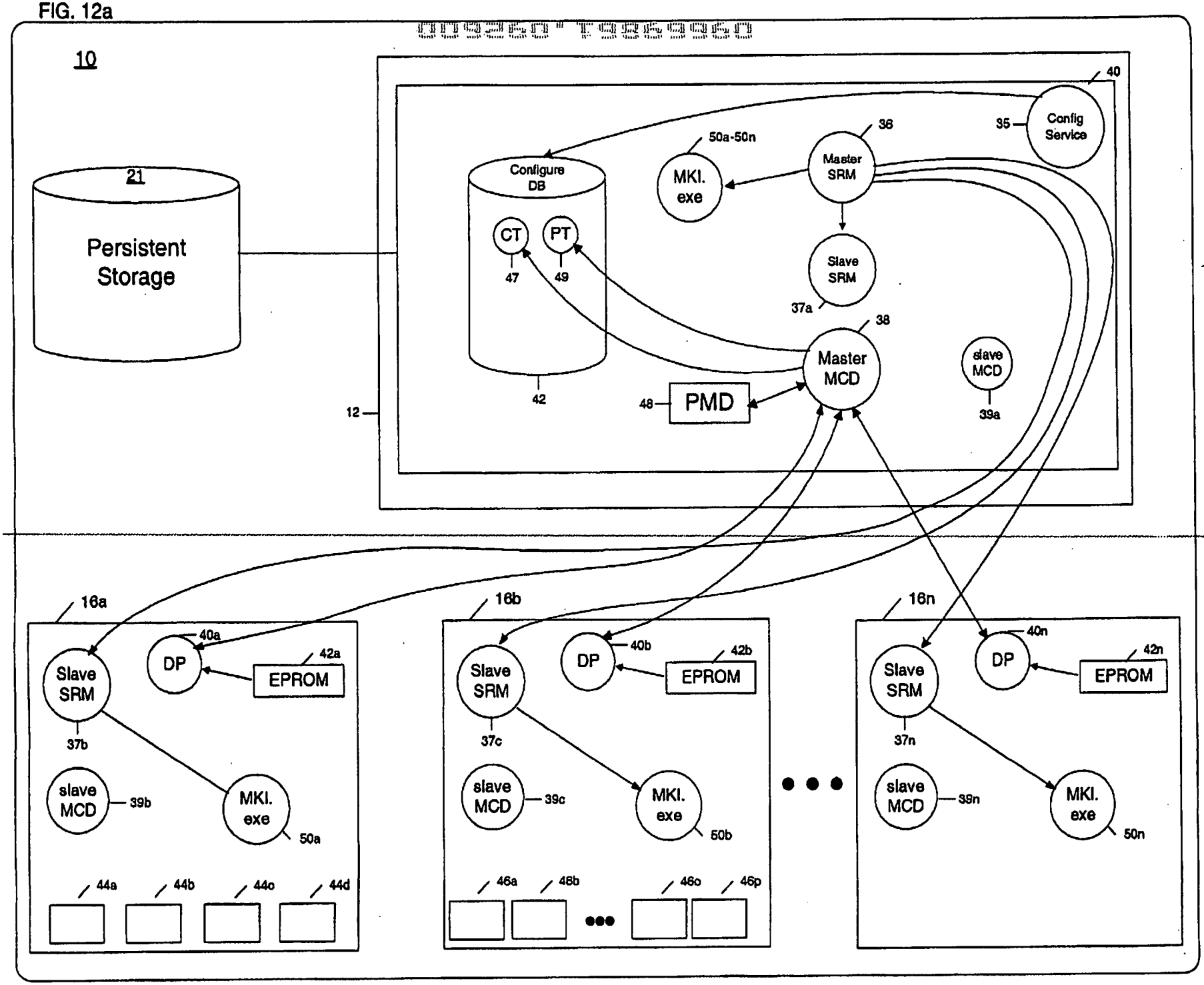

909
User Preferences
Show
ToolTips
Horizontal Grid Lines on Tables
Vertical Grid Lines on Tables
Bookmarks
910a
910b
910c
910d
Look and Feel
Use System Look and Feel
Use Java Look and Feel
OK
Cancel

Fig. 11g

FIG. 12a


10
21
Persistent Storage
12
40
Config Service
35
36
Master SRM
50a-50n
MKI. exe
Configure DB
CT
PT
47
49
42
Slave SRM
37a
38
Master MCD
slave MCD
39a
48
PMD
16a
Slave SRM
37b
DP
40a
EPROM
42a
slave MCD
39b
MKI. exe
50a
44a
44b
44c
44d
16b
Slave SRM
37c
DP
40b
EPROM
42b
slave MCD
39c
MKI. exe
50b
46a
46b
46c
46p
16n
Slave SRM
37n
DP
40n
EPROM
42n
slave MCD
39n
MKI. exe
50n

Sent By: Equipe Communications; 781 795 2031; Sep-15-00 2:48PM; Page 15/21

CARD TABLE

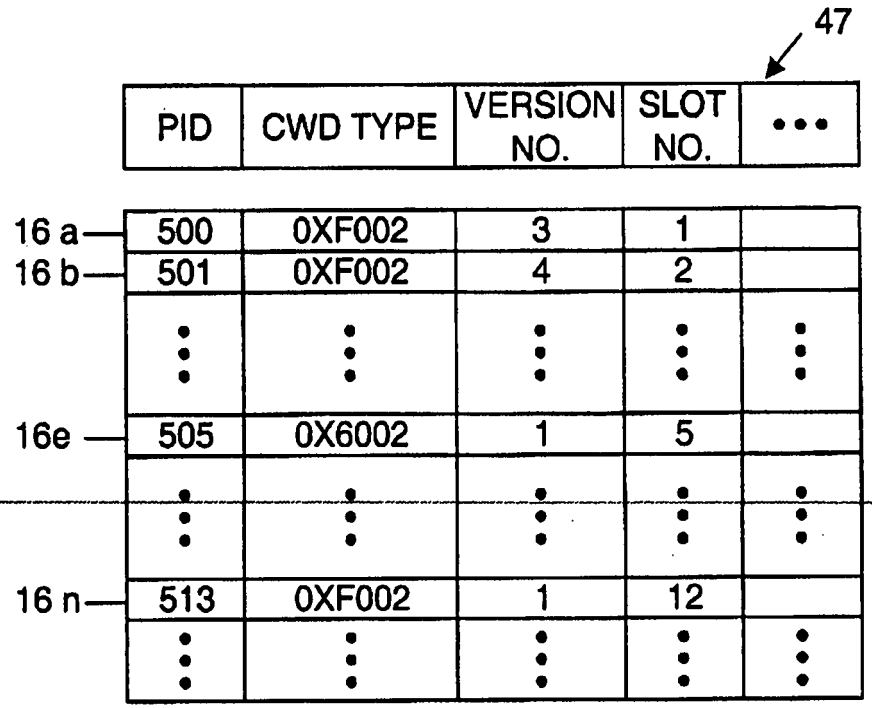


FIG. 12b

Sent By: Equipe Communications; 781 795 2031; Sep-15-00 2:48PM; Page 16/21

PORT TABLE

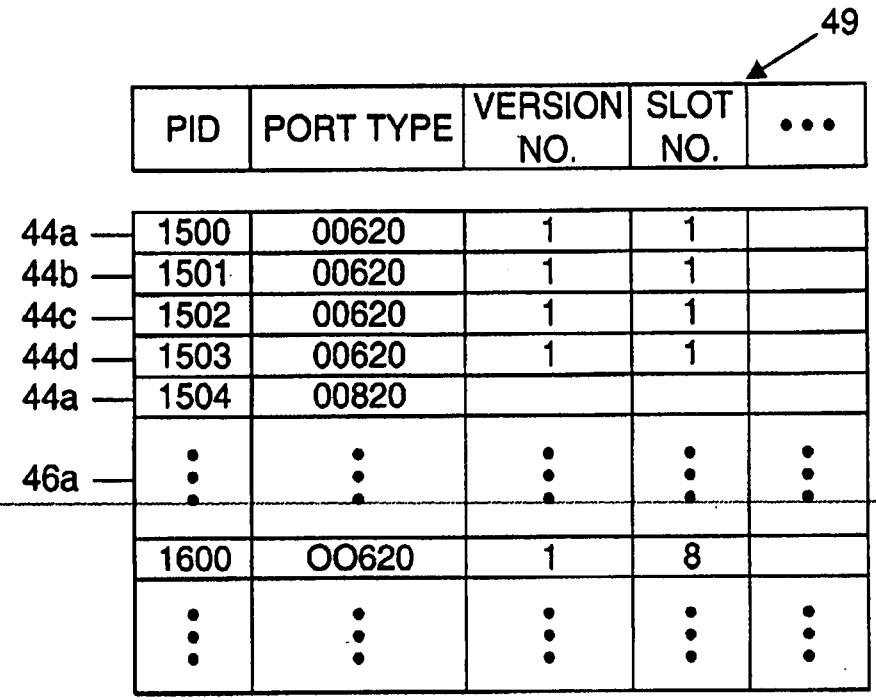


FIG. 12c

FIG. 13a

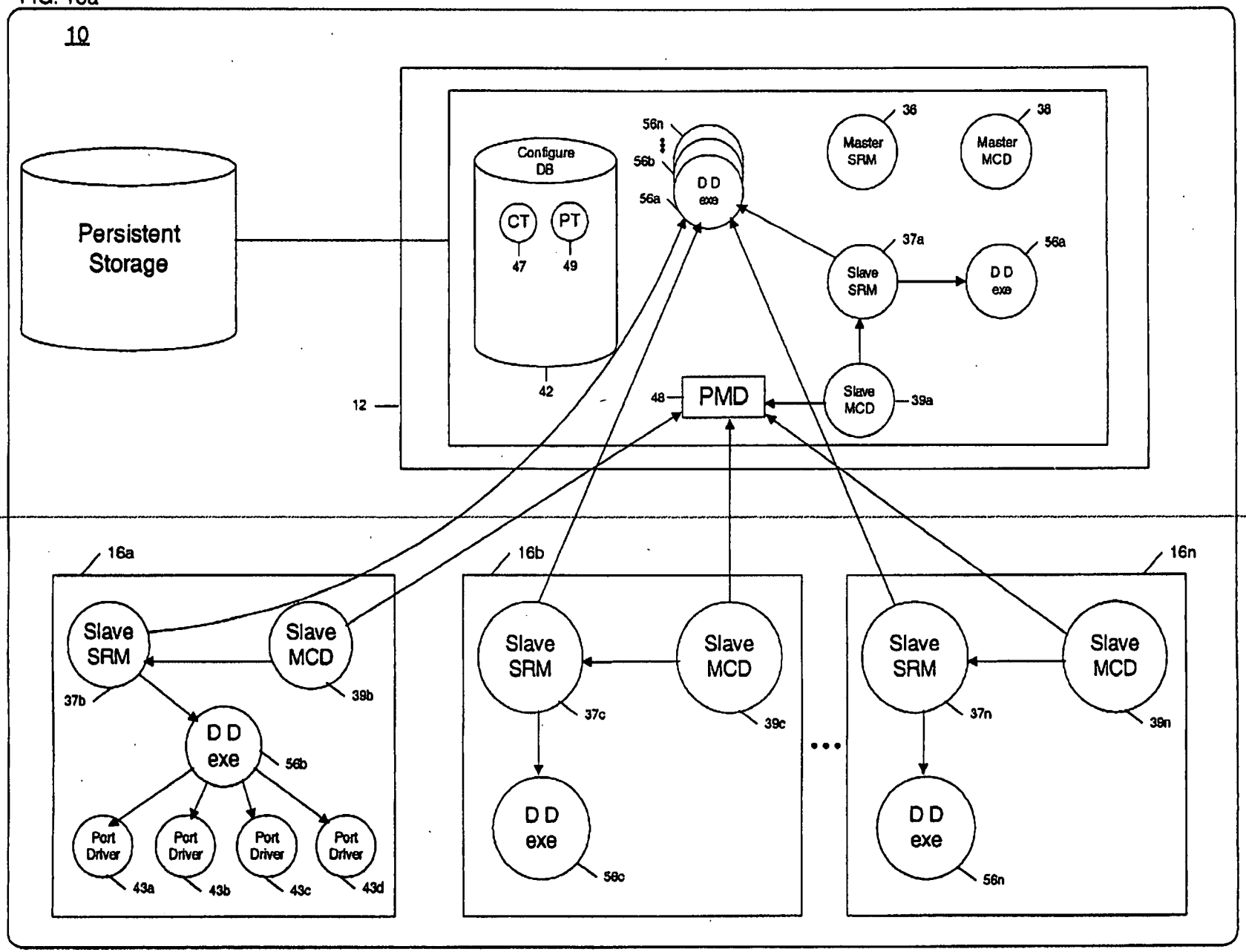
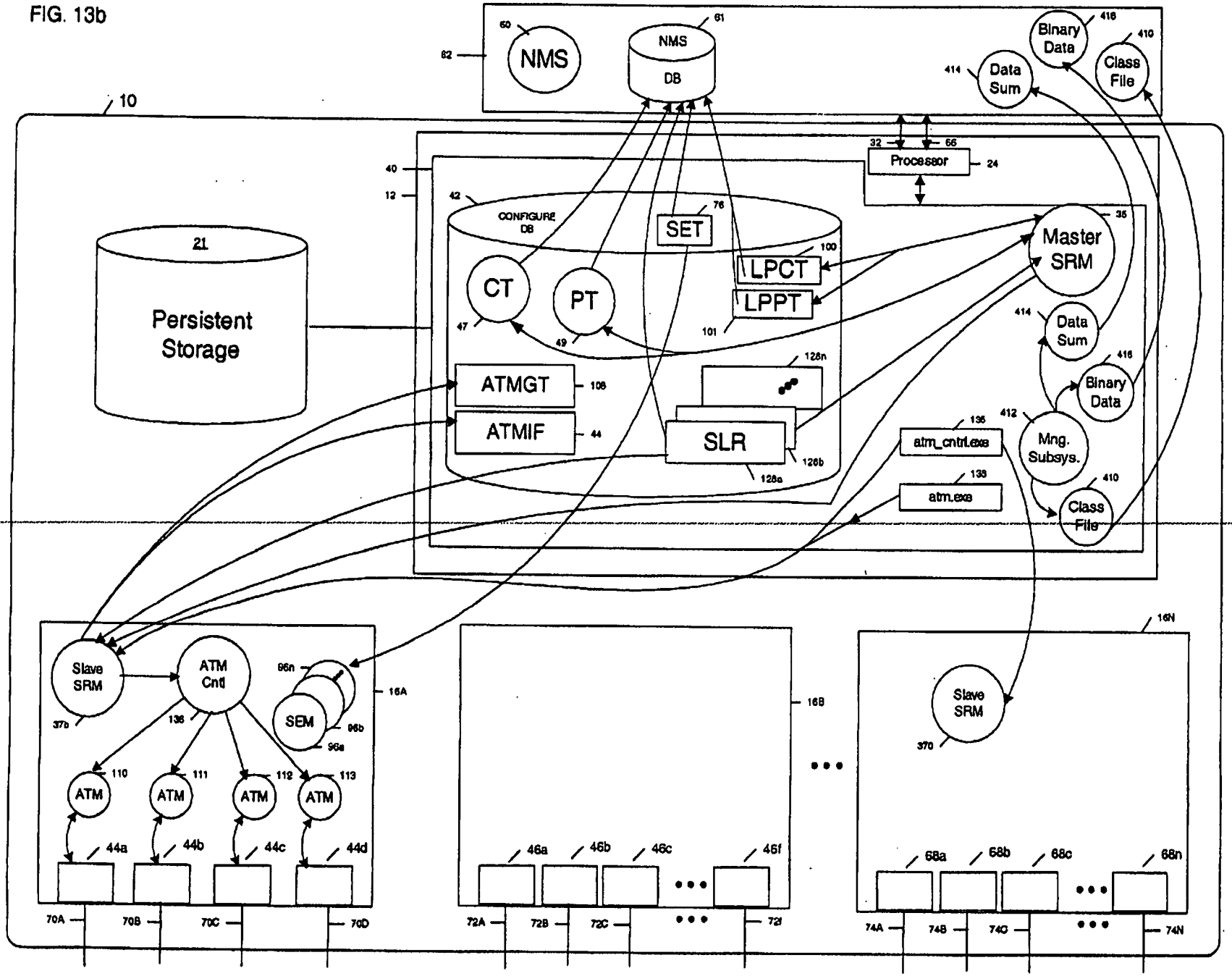

10
Persistent Storage
Configure DB
CT
PT
47
49
42
12
56n
56b
56a
DD exe
Master SRM
36
Master MCD
38
Slave SRM
37a
DD exe
56a
Slave MCD
39a
48
PMD
16a
Slave SRM
37b
Slave MCD
39b
DD exe
56b
Port Driver
43a
Port Driver
43b
Port Driver
43c
Port Driver
43d
16b
Slave SRM
37c
Slave MCD
39c
DD exe
56c
16n
Slave SRM
37n
Slave MCD
39n
DD exe
56n

FIG. 13b


NMS
NMS DB
Binary Data
Class File
Data Sum
10
Processor
CONFIGURE DB
SET
LPCT
LPPT
CT
PT
Master SRM
Persistent Storage
ATMGT
ATMIF
SLR
Data Sum
Binary Data
atm_cntrl.exe
Mng. Subsys.
atm.exe
Class File
Slave SRM
ATM Cntl
SEM
ATM
Slave SRM
Slave SRM

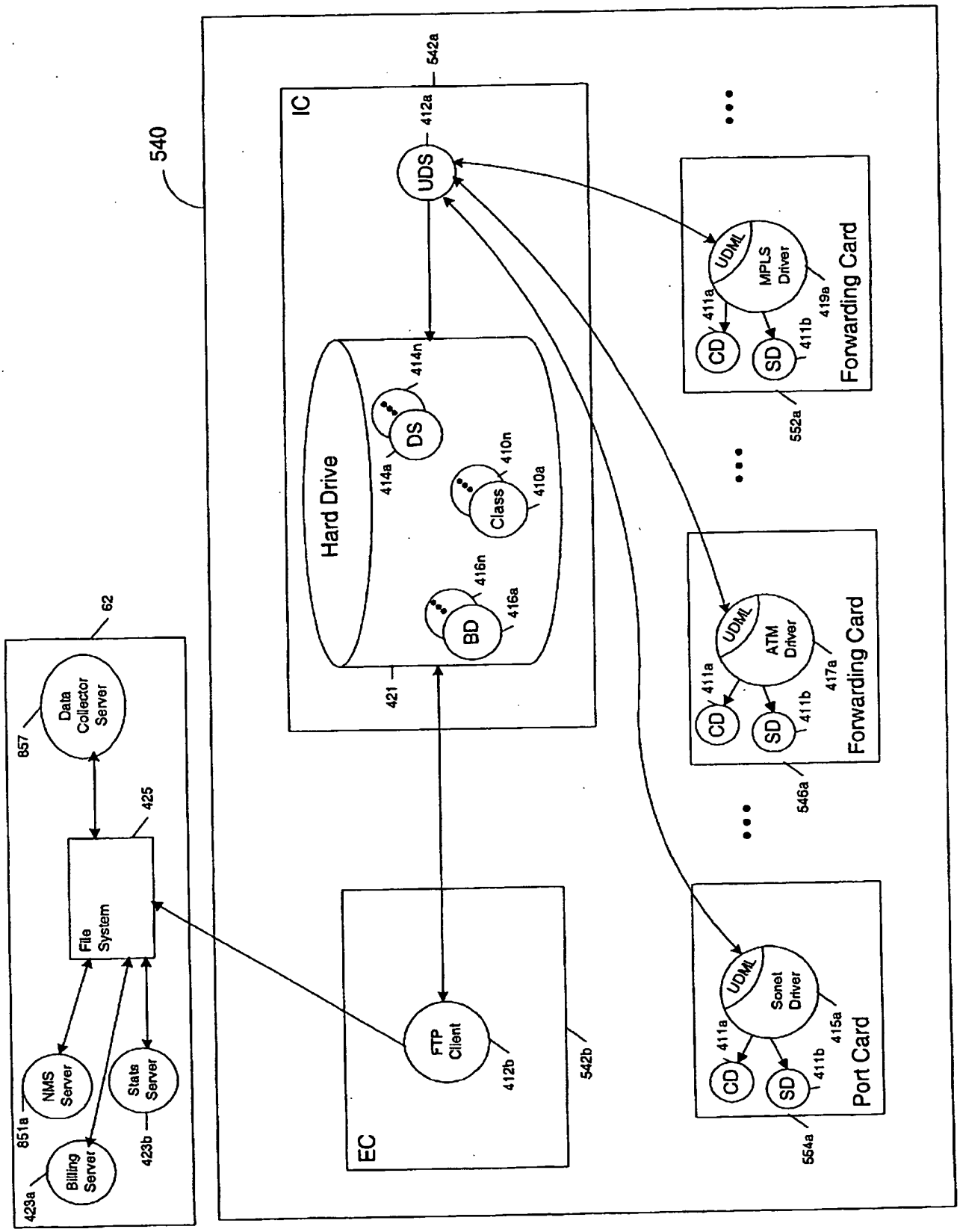

540
IC
542a
412a
UDS
Hard Drive
414n
DS
414a
410n
Class
410a
416n
BD
416a
421
EC
FTP Client
412b
542b
62
Data Collector Server
857
425
File System
NMS Server
851a
Billing Server
423a
Stats Server
423b
Forwarding Card
UDML
MPLS Driver
411a
CD
SD
411b
419a
552a
ATM Driver
417a
546a
Sonet Driver
415a
Port Card
554a

Fig. 13c

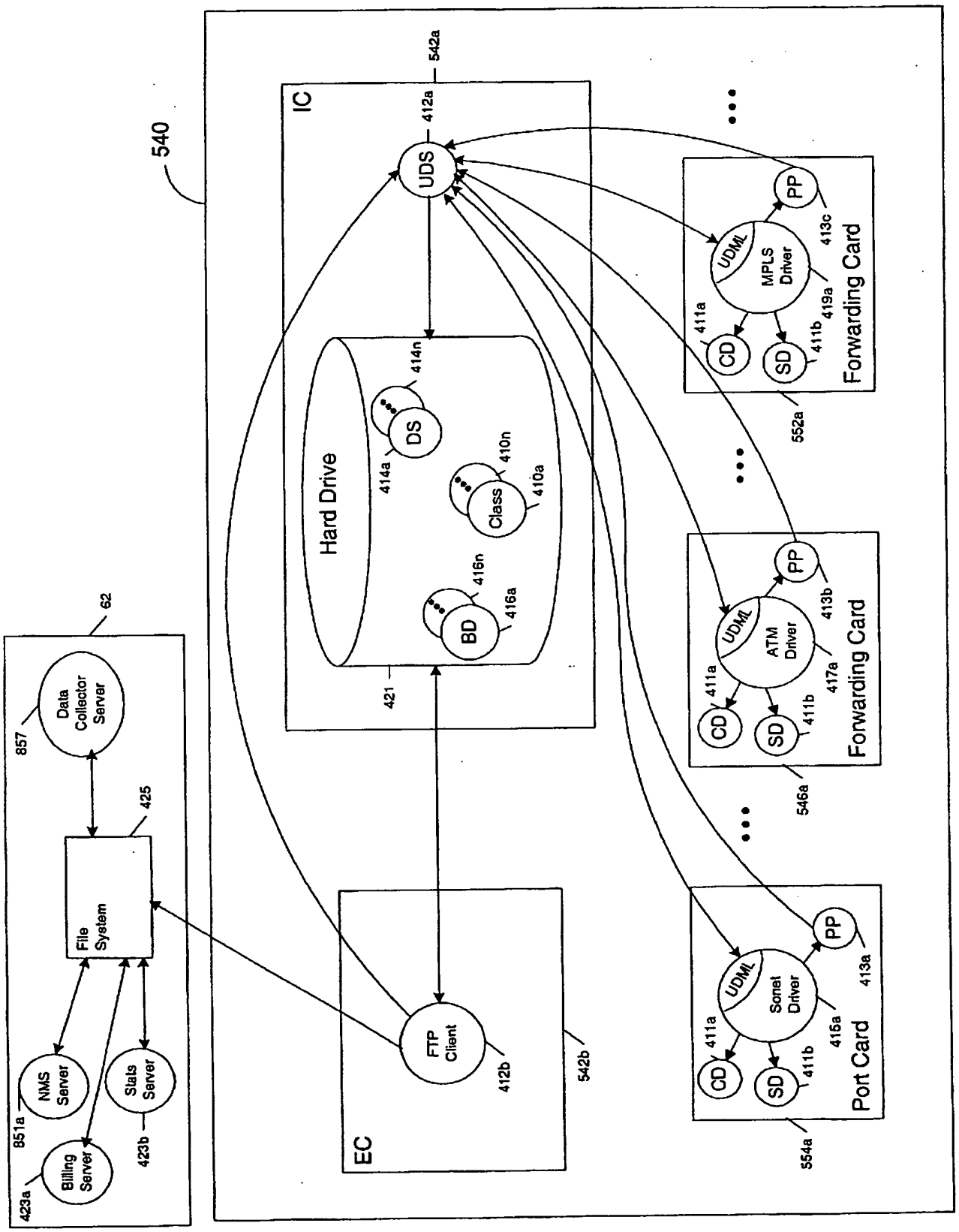

540
IC
542a
412a
UDS
Hard Drive
414n
DS
414a
410n
Class
410a
416n
BD
416a
421
EC
FTP Client
412b
542b
62
Data Collector Server
857
425
File System
NMS Server
851a
Stats Server
423b
Billing Server
423a
Forwarding Card
552a
MPLS Driver
UDML
PP
413c
419a
CD
411a
SD
411b
Forwarding Card
546a
ATM Driver
413b
417a
Port Card
554a
Sonet Driver
413a
415a

Fig. 13d

FIG. 14a

Service Endpoint Table 76

	Service Endpoint #	Port PID
78	1	1500
80	2	1501
82	3	1501
84	4	1501
86	5	1502
88	6	1502
90	7	1503
92	8	1503
94	9	1503
168	10	1502
	⋮	⋮

FIG. 14b

Logical to Physical Card Table 100

	LID (98)	Primary PID (102)	Back-up PID (104)
106	30	500	513
109	31	501	513
	⋮	⋮	⋮

FIG. 14c

Logical to Physical Port Table 101

	LID (98)	Primary PID (102)	Back-up PID (104)
107	40	1500	1600
	⋮	⋮	⋮

FIG. 14d

ATM Group Table 108

Group #	Card LID	•••
1	30	
2	30	
3	30	
4	30	

FIG. 14e

ATM Interface Table 114

ATM IF	ATM Group	SE	•••
1	1	1	
2	1	1	
3	1	1	
4	2	2	
5	2	3	
6	2	4	
⋮	⋮	⋮	⋮
12	3	10	
⋮	⋮	⋮	⋮

170

FIG. 14f

Software Load Record 128a

Control Shim	LID
atm-cntl.exe	30

130 134 132

FIG. 15

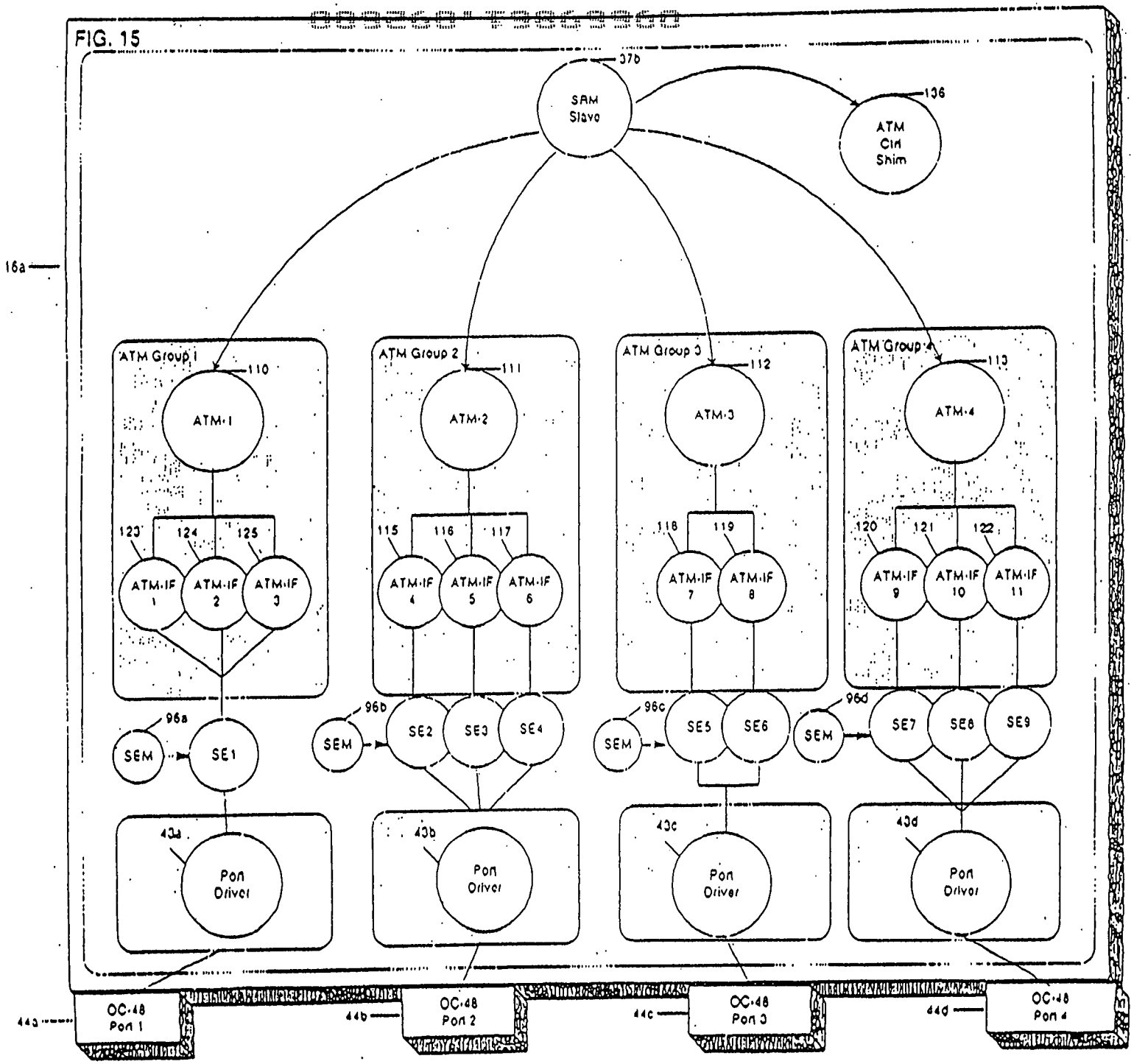
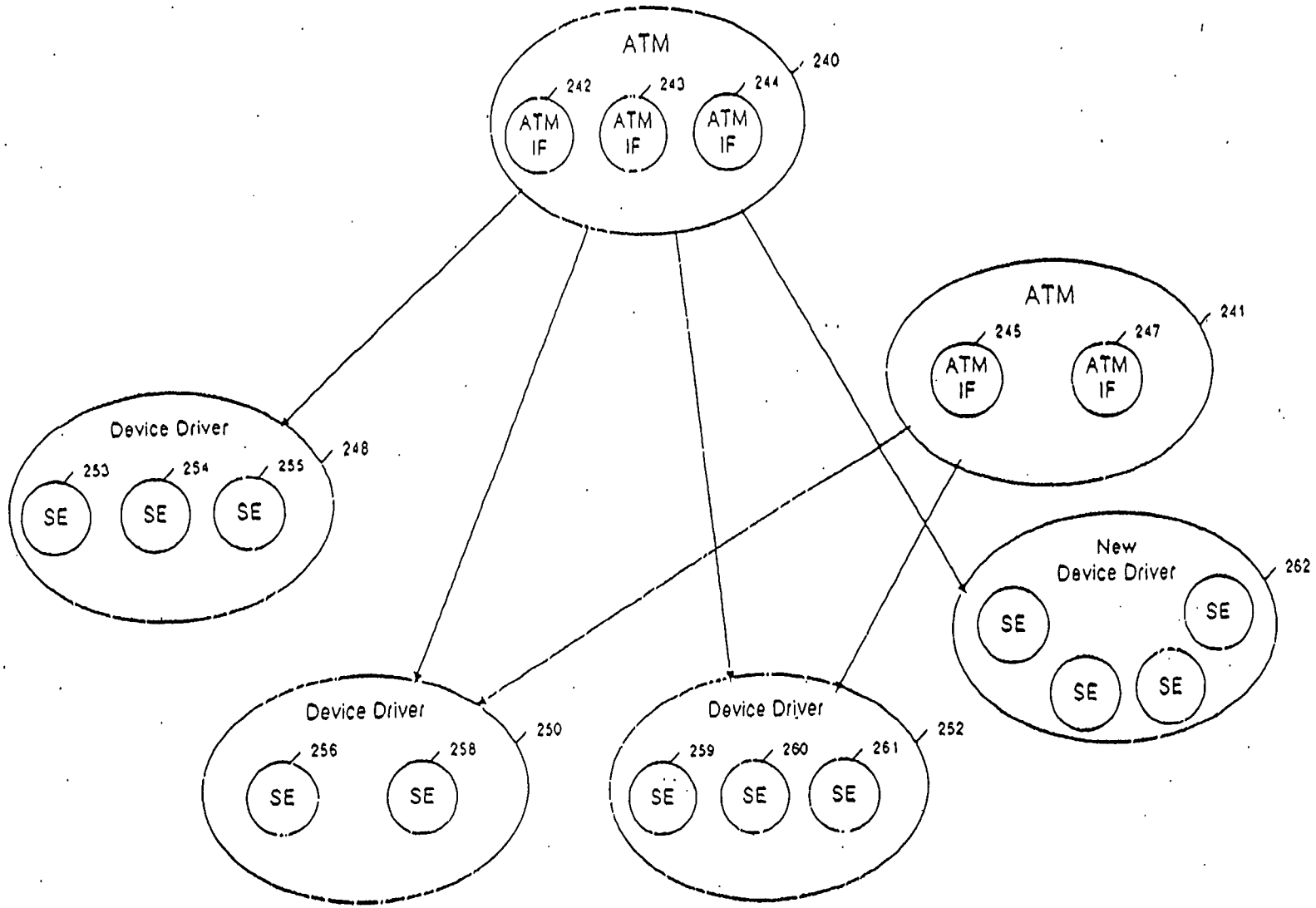

37b
SAM Slave
136
ATM Cln Shim
16a
ATM Group 1
110
ATM-1
123
124
125
ATM-IF 1
ATM-IF 2
ATM-IF 3
ATM Group 2
111
ATM-2
115
116
117
ATM-IF 4
ATM-IF 5
ATM-IF 6
ATM Group 3
112
ATM-3
118
119
ATM-IF 7
ATM-IF 8
ATM Group 4
113
ATM-4
120
121
122
ATM-IF 9
ATM-IF 10
ATM-IF 11
96a
SEM
SE1
96b
SEM
SE2
SE3
SE4
96c
SEM
SE5
SE6
96d
SEM
SE7
SE8
SE9
43a
Pon Driver
43b
Pon Driver
43c
Pon Driver
43d
Pon Driver
44a
OC-48 Pon 1
44b
OC-48 Pon 2
44c
OC-48 Pon 3
44d
OC-48 Pon 4

FIG. 16a


ATM
240
242
243
244
ATM IF
ATM IF
ATM IF
ATM
241
245
247
ATM IF
ATM IF
Device Driver
248
253
254
255
SE
SE
SE
New Device Driver
262
SE
SE
SE
SE
Device Driver
250
256
258
SE
SE
Device Driver
252
259
260
261
SE
SE
SE

09936 "T9869960

FIG. 16b

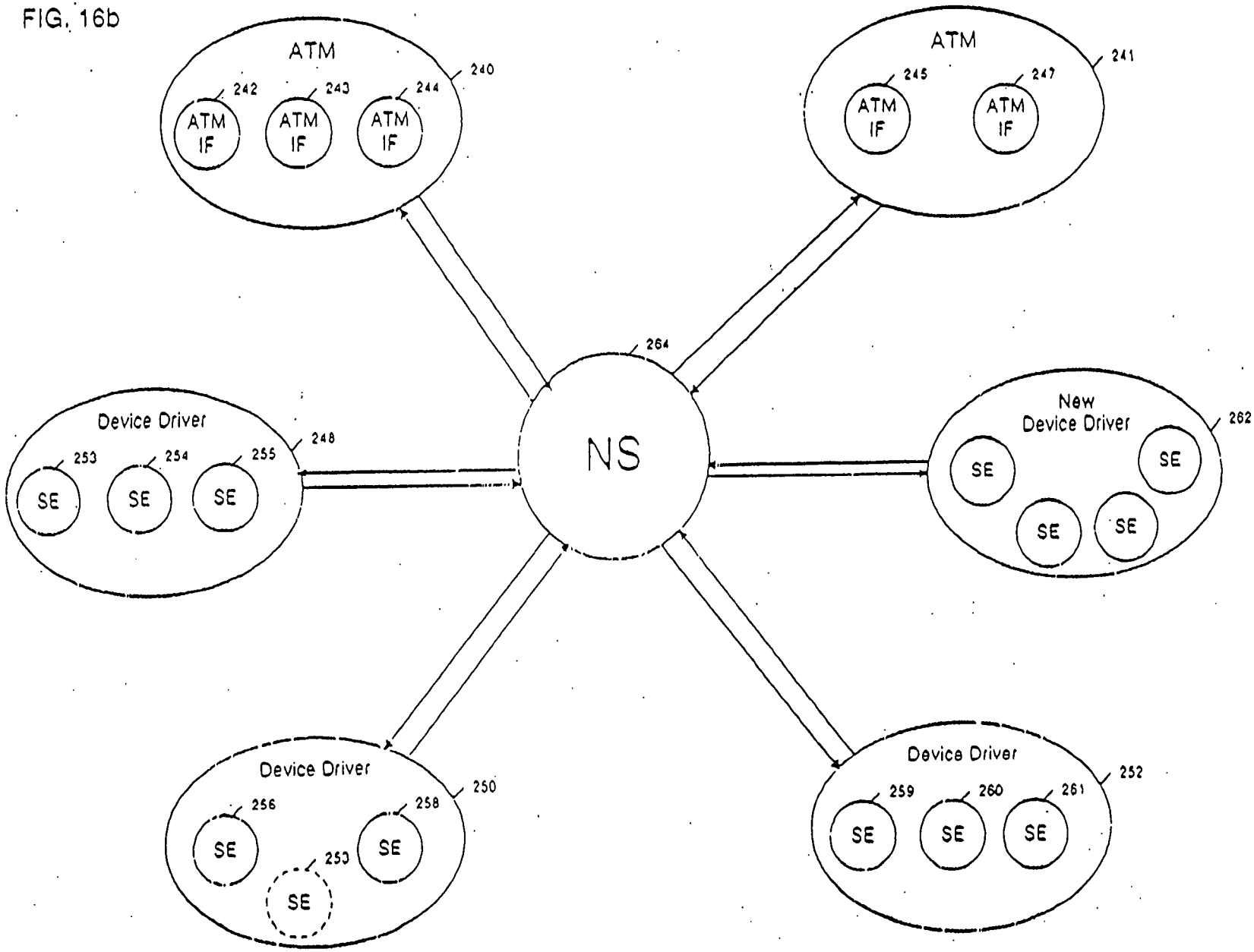


FIG. 16c

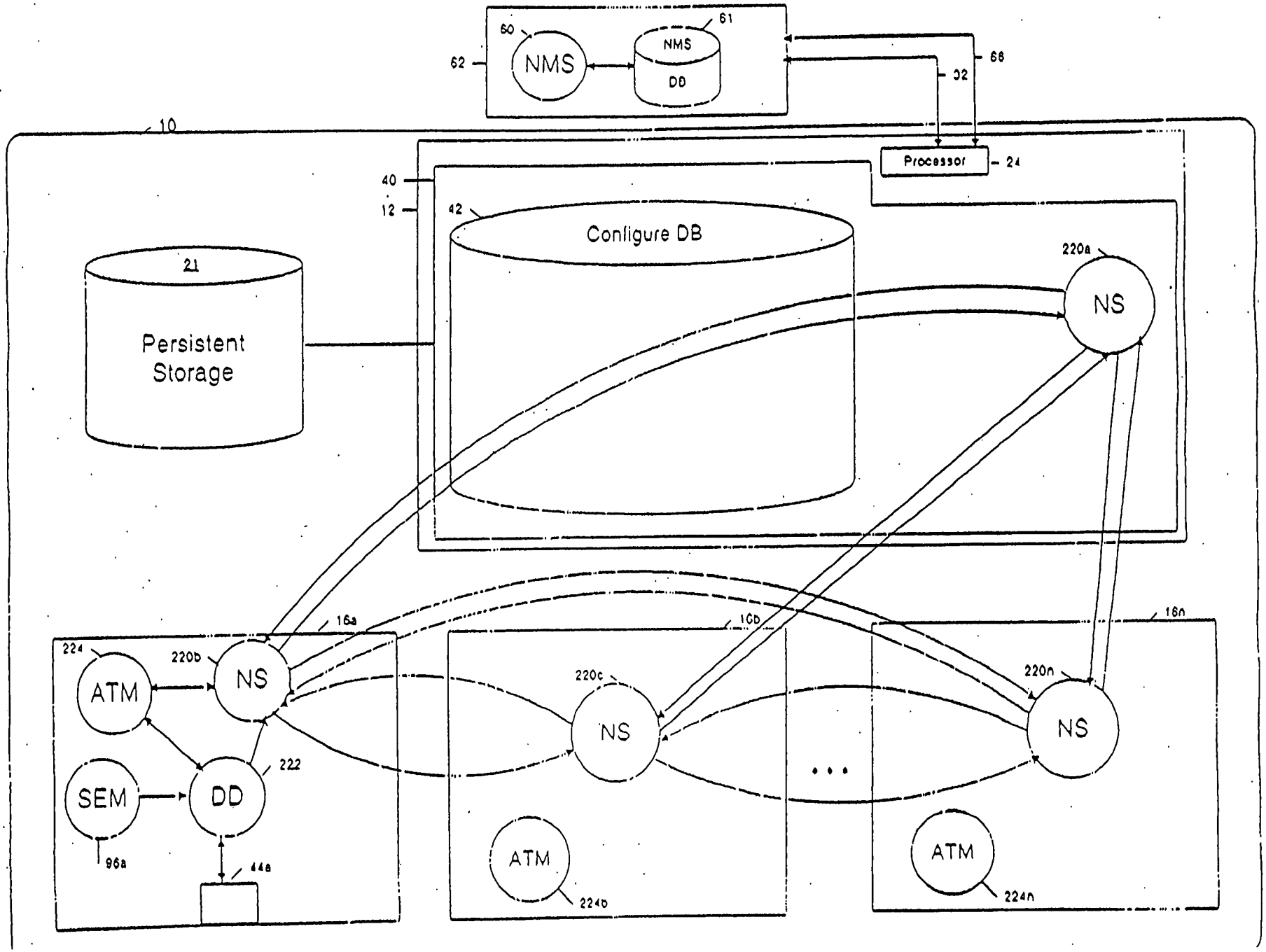
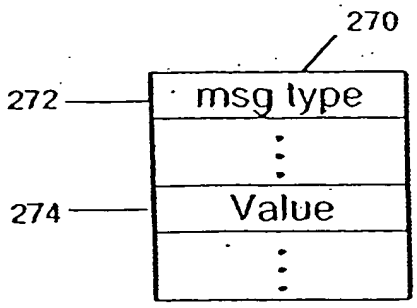

60
61
NMS
NMS
DD
62
68
32
10
Processor
24
40
12
42
Configure DB
21
Persistent Storage
220a
NS
16a
16b
16n
224
220b
ATM
NS
220c
NS
220n
NS
222
SEM
DD
96a
44a
ATM
224b
ATM
224n

FIG. 16d



DOCKET - DOCKET

FIG. 17

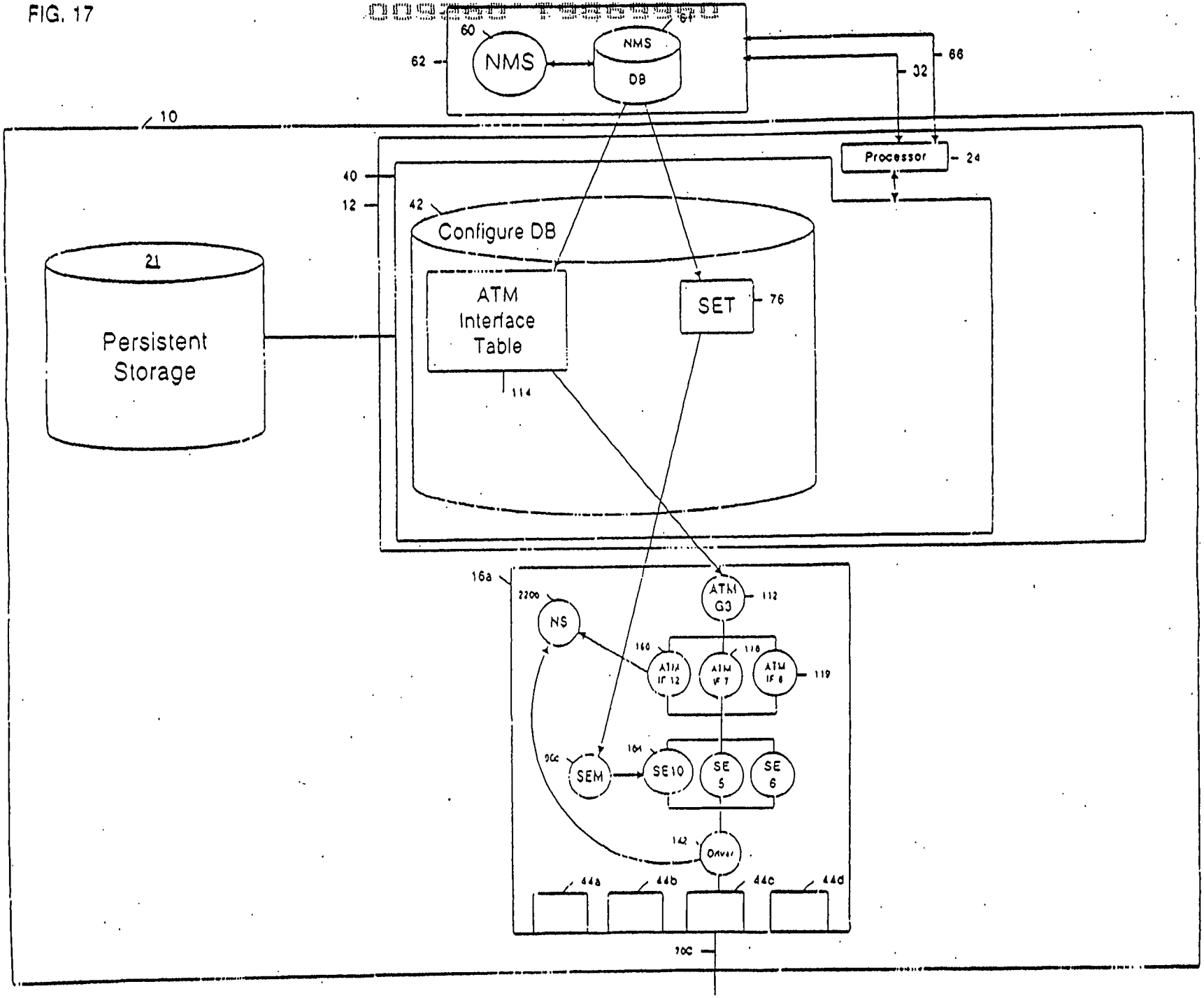

60
NMS
62
NMS
DB
61
66
32
10
Processor
24
40
12
42
Configure DB
21
Persistent Storage
ATM Interface Table
114
SET
76
16a
2200
NS
ATM G3
112
160
118
119
SEM
164
SE10
SE 5
SE 6
142
44a
44b
44c
44d
70c

FIG. 18

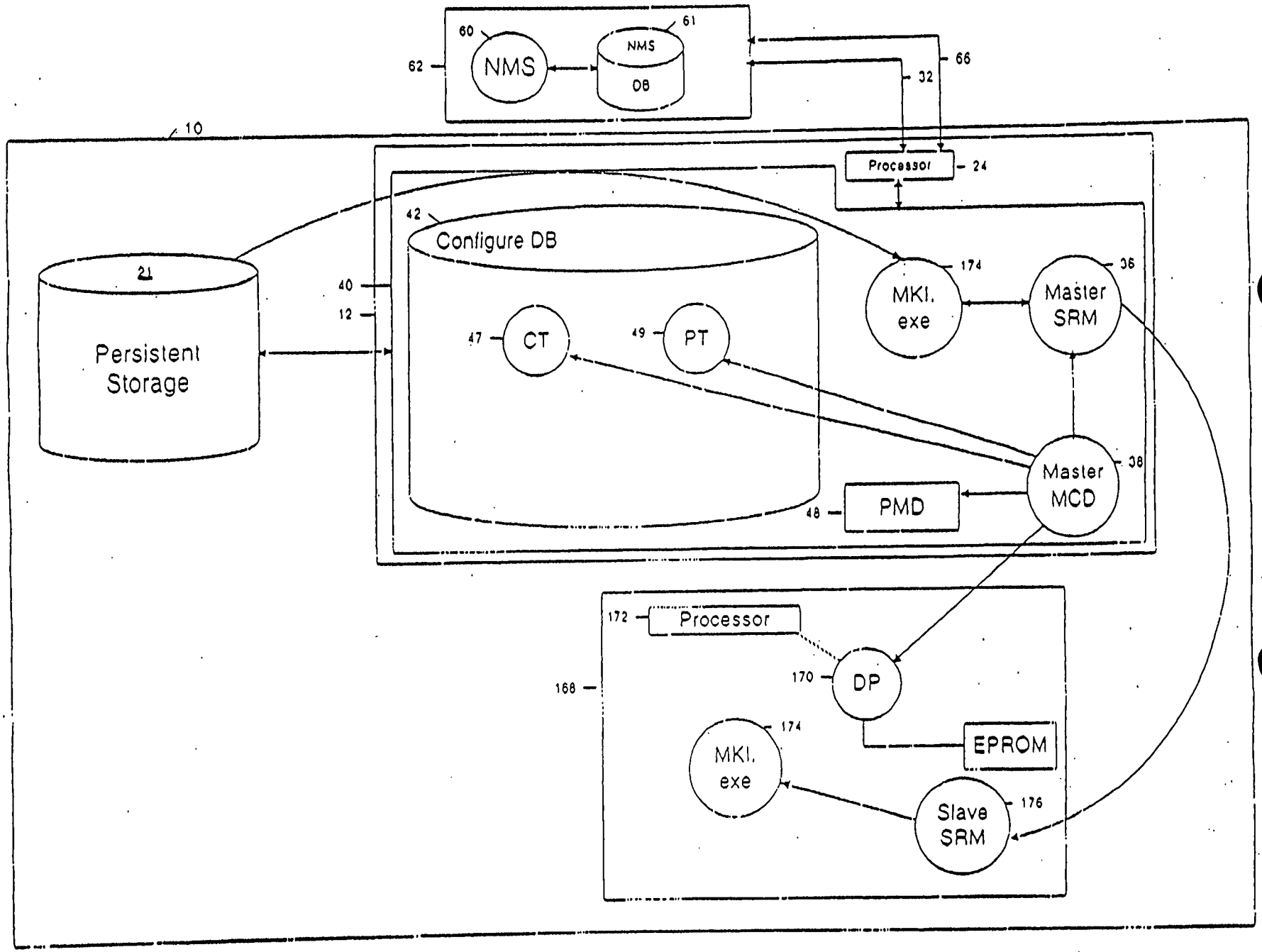

60
NMS
61
NMS
DB
62
66
32
10
Processor
24
42
Configure DB
21
Persistent Storage
40
12
47
CT
49
PT
MKI. exe
174
Master SRM
36
Master MCD
38
PMD
48
172
Processor
170
DP
168
EPROM
MKI. exe
174
Slave SRM
176

FIG. 19

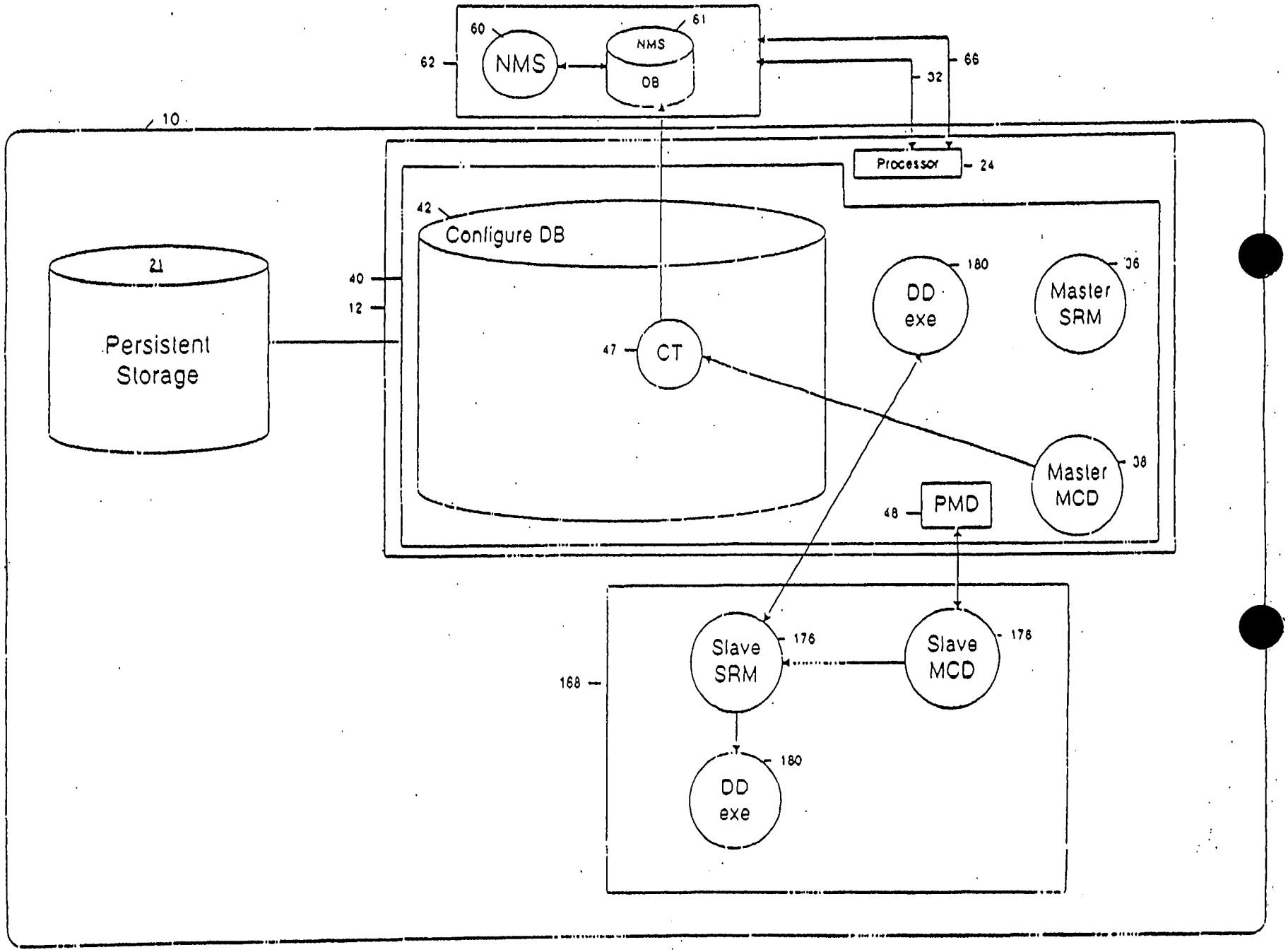

60
NMS
61
NMS
DB
62
66
32
10
Processor
24
42
Configure DB
21
Persistent Storage
40
12
47
CT
180
DD exe
36
Master SRM
38
Master MCD
48
PMD
168
Slave SRM
176
Slave MCD
178
180
DD exe

FIG. 20

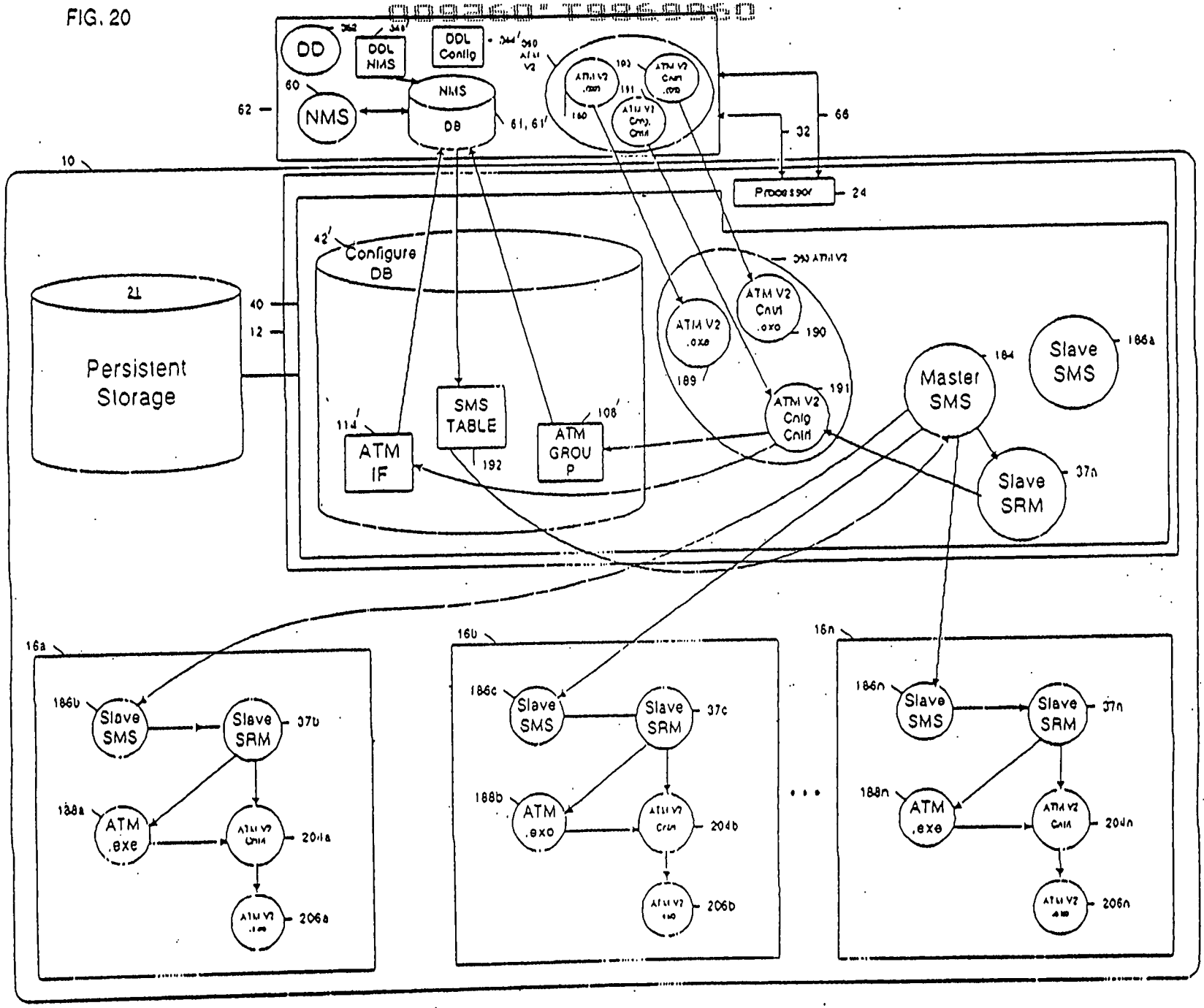

DD
DDL NMS
DDL Config
NMS
NMS DB
62
60
61, 61'
66
32
10
Processor
24
Configure DB
42'
Persistent Storage
21
40
12
ATM V2 .exe
ATM V2 Cnfg .exe
190
189
ATM V2 Cnfg Cnfg
191
SMS TABLE
192
ATM IF
114'
ATM GROUP
108'
Master SMS
184
Slave SMS
186a
Slave SRM
37n
16a
186b
Slave SMS
Slave SRM
37b
188a
ATM .exe
ATM V2 Cnfg
204a
ATM V2 .exe
206a
16b
186c
Slave SMS
Slave SRM
37c
188b
ATM .exe
ATM V2 Cnfg
204b
ATM V2 .exe
206b
16n
186n
Slave SMS
Slave SRM
37n
188n
ATM .exe
ATM V2 Cnfg
204n
ATM V2 .exe
206n

FIG. 21

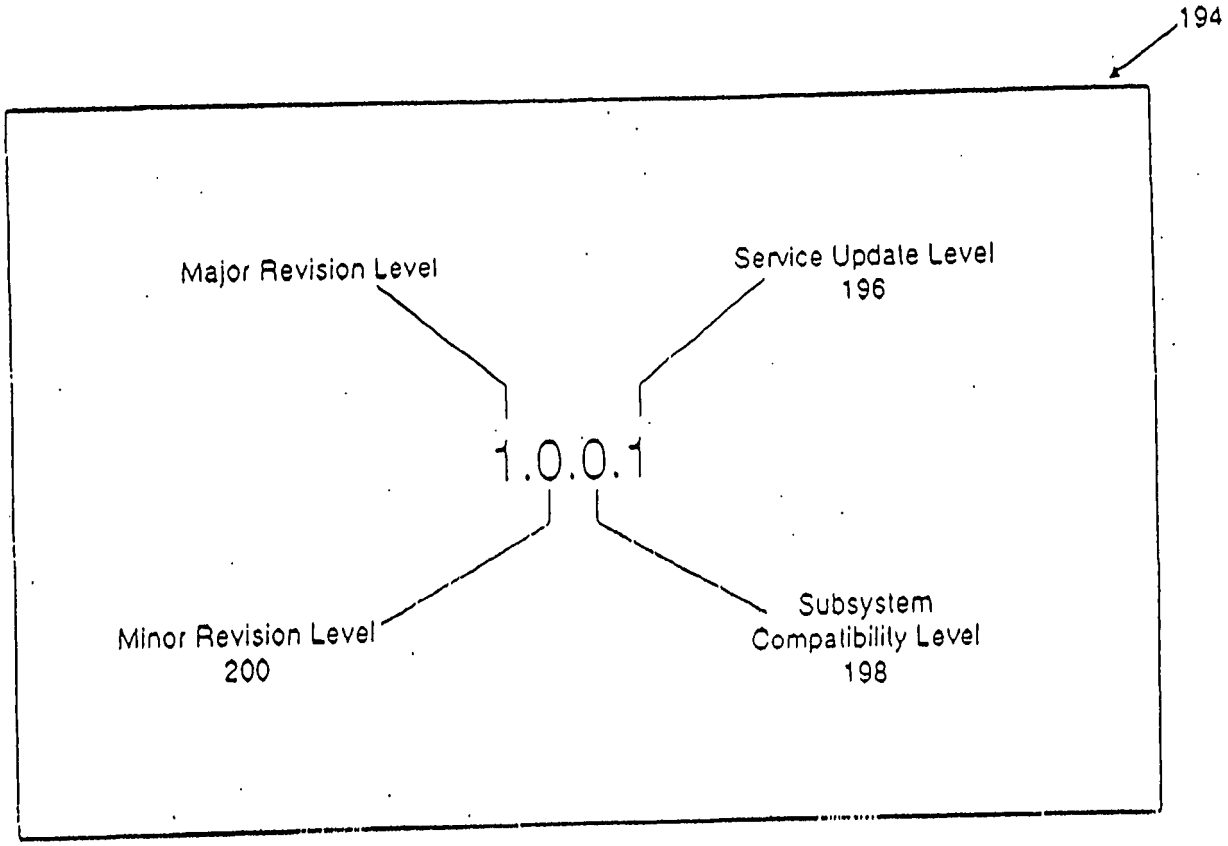

194
Major Revision Level
Service Update Level
196
1.0.0.1
Minor Revision Level
200
Subsystem
Compatibility Level
198

FIG. 22

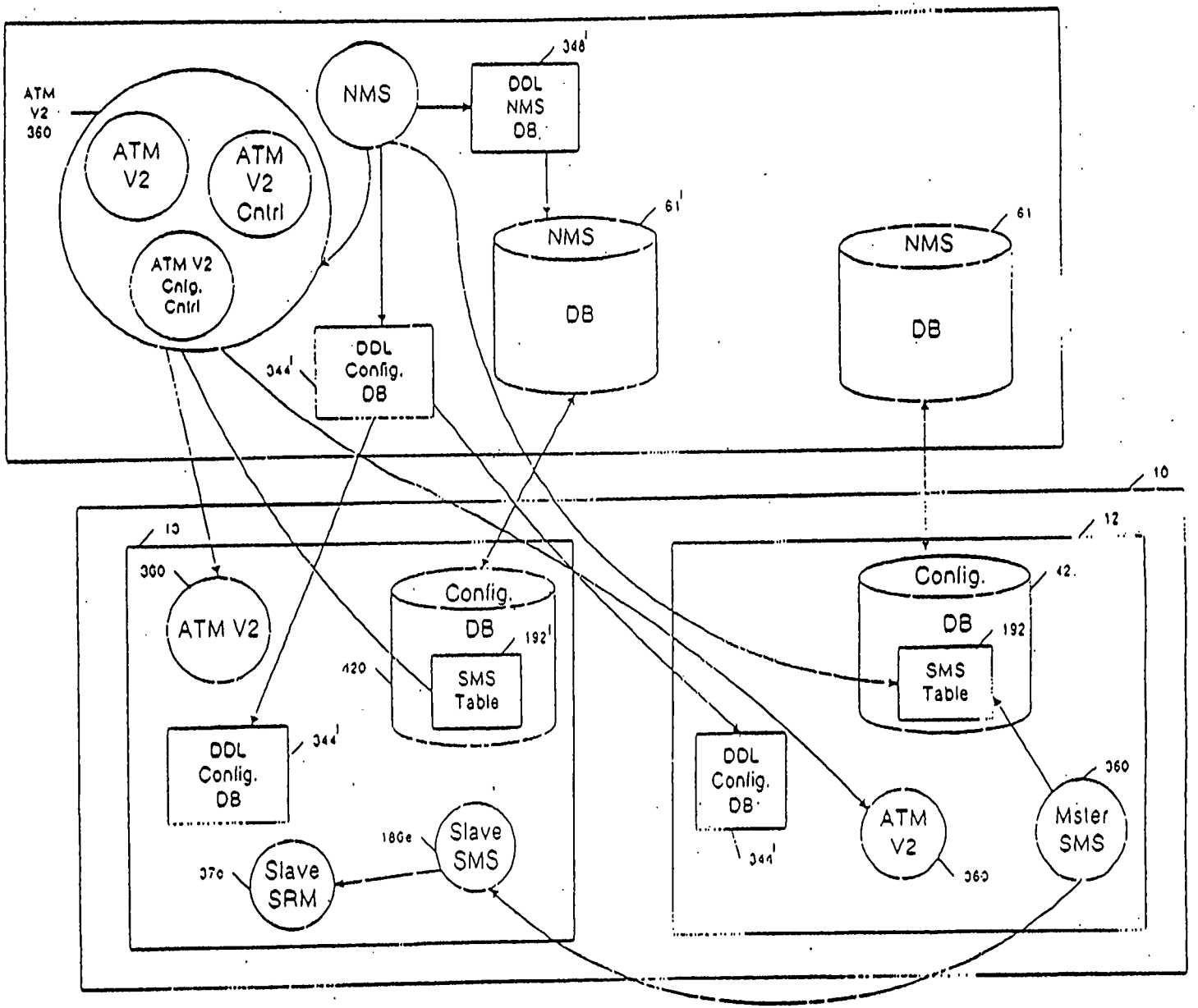

ATM V2 360
ATM V2
ATM V2 Cntrl
ATM V2 Cnfg. Cntrl
NMS
DDL NMS DB
348'
NMS DB
61'
NMS DB
61
DDL Config. DB
344'
10
13
360
ATM V2
Config. DB
192'
120
SMS Table
DDL Config. DB
344'
Slave SMS
180e
Slave SRM
370
12
Config. DB
42
192
SMS Table
DDL Config. DB
344'
ATM V2
360
Mster SMS
360

FIG. 23

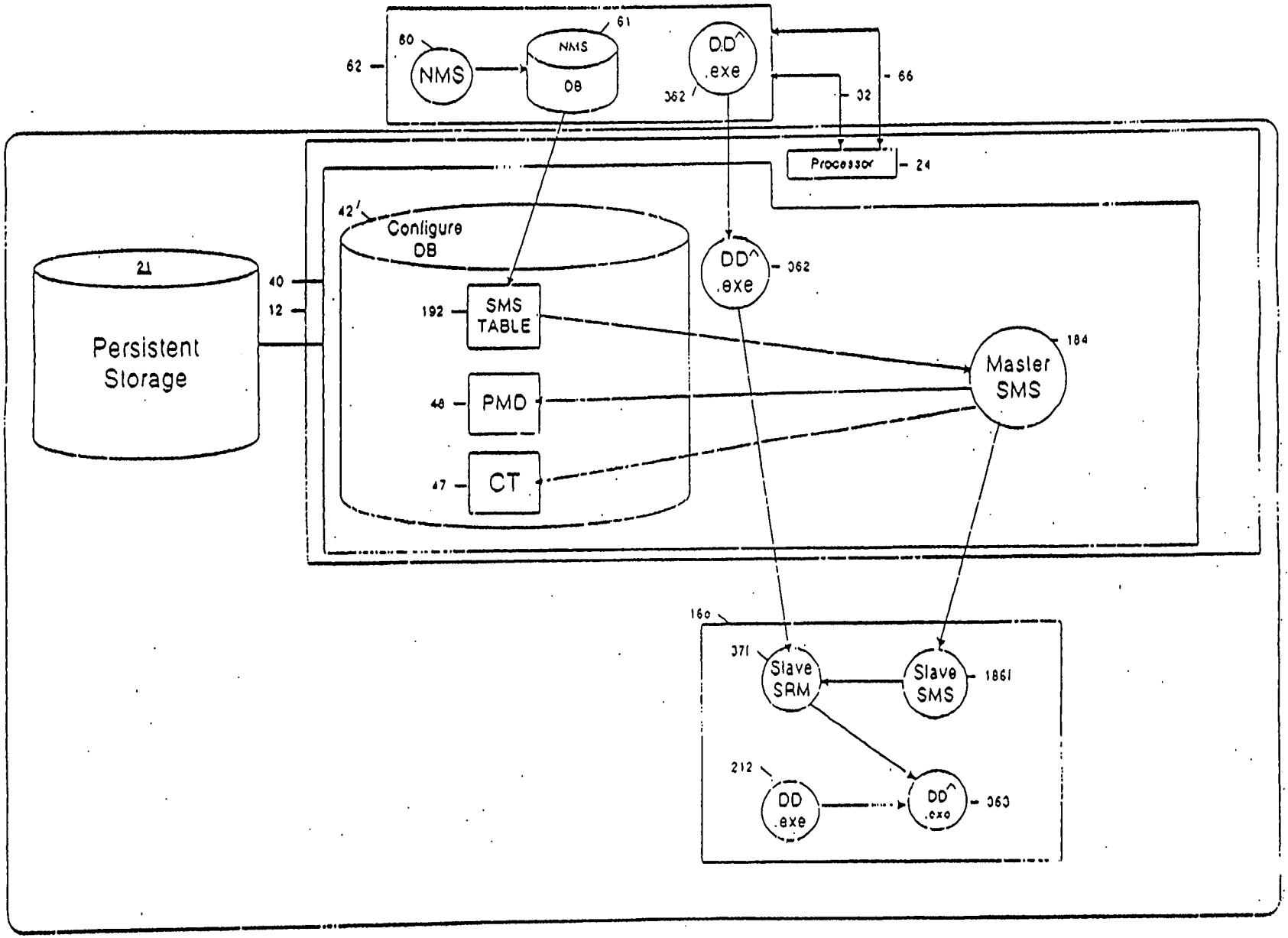

60
NMS
61
NMS
DB
62
DD^
.exe
362
32
66
Processor
24
42'
Configure
DB
21
Persistent
Storage
40
12
192
SMS
TABLE
DD^
.exe
362
48
PMD
47
CT
Master
SMS
184
160
371
Slave
SRM
Slave
SMS
1861
212
DD
.exe
DD^
.exo
363

FIG. 24

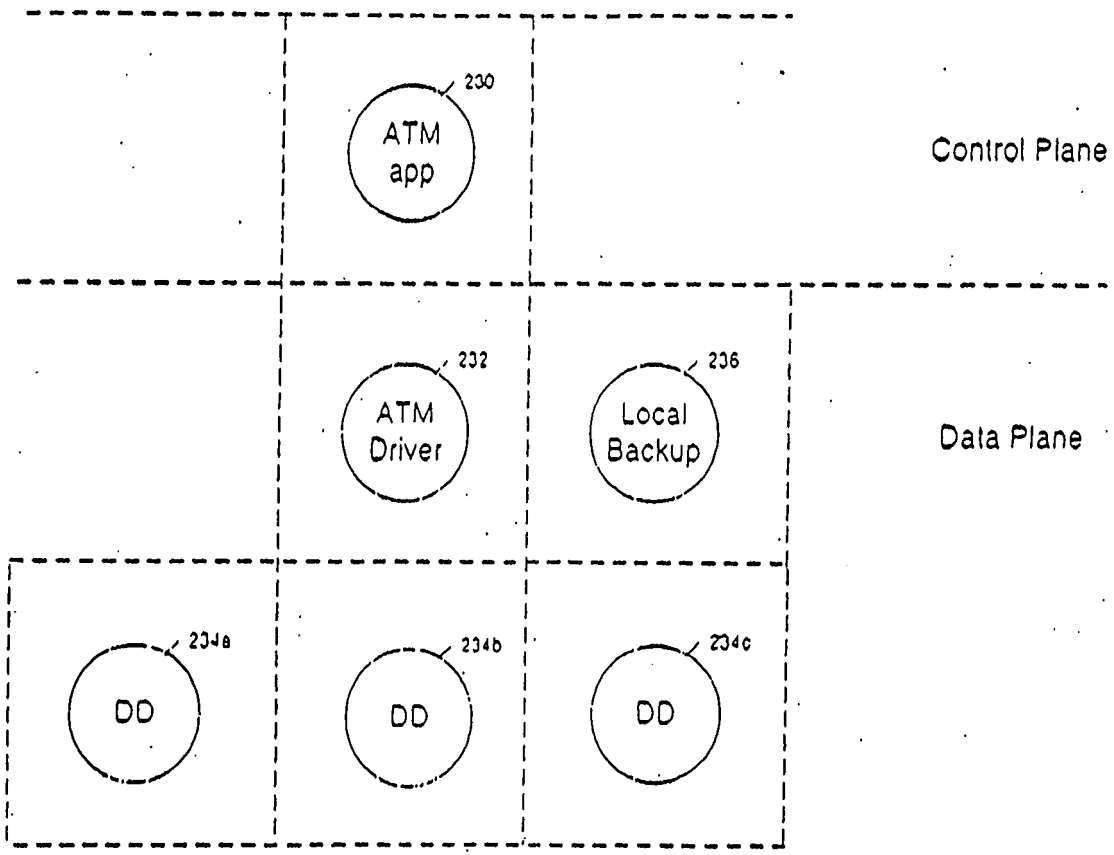

230
ATM app
Control Plane
232
ATM Driver
236
Local Backup
Data Plane
234a
DD
234b
DD
234c
DD

FIG. 25

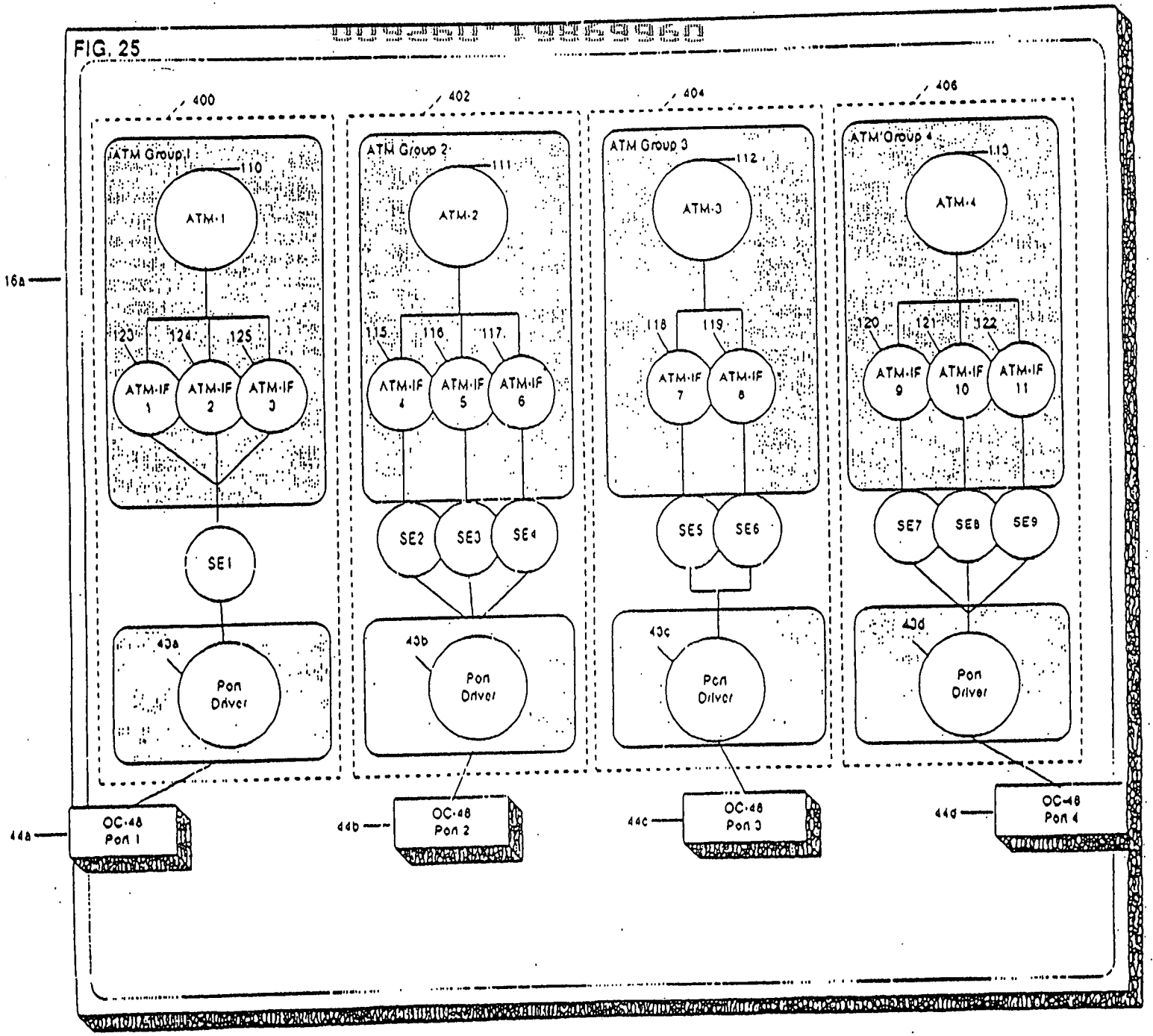
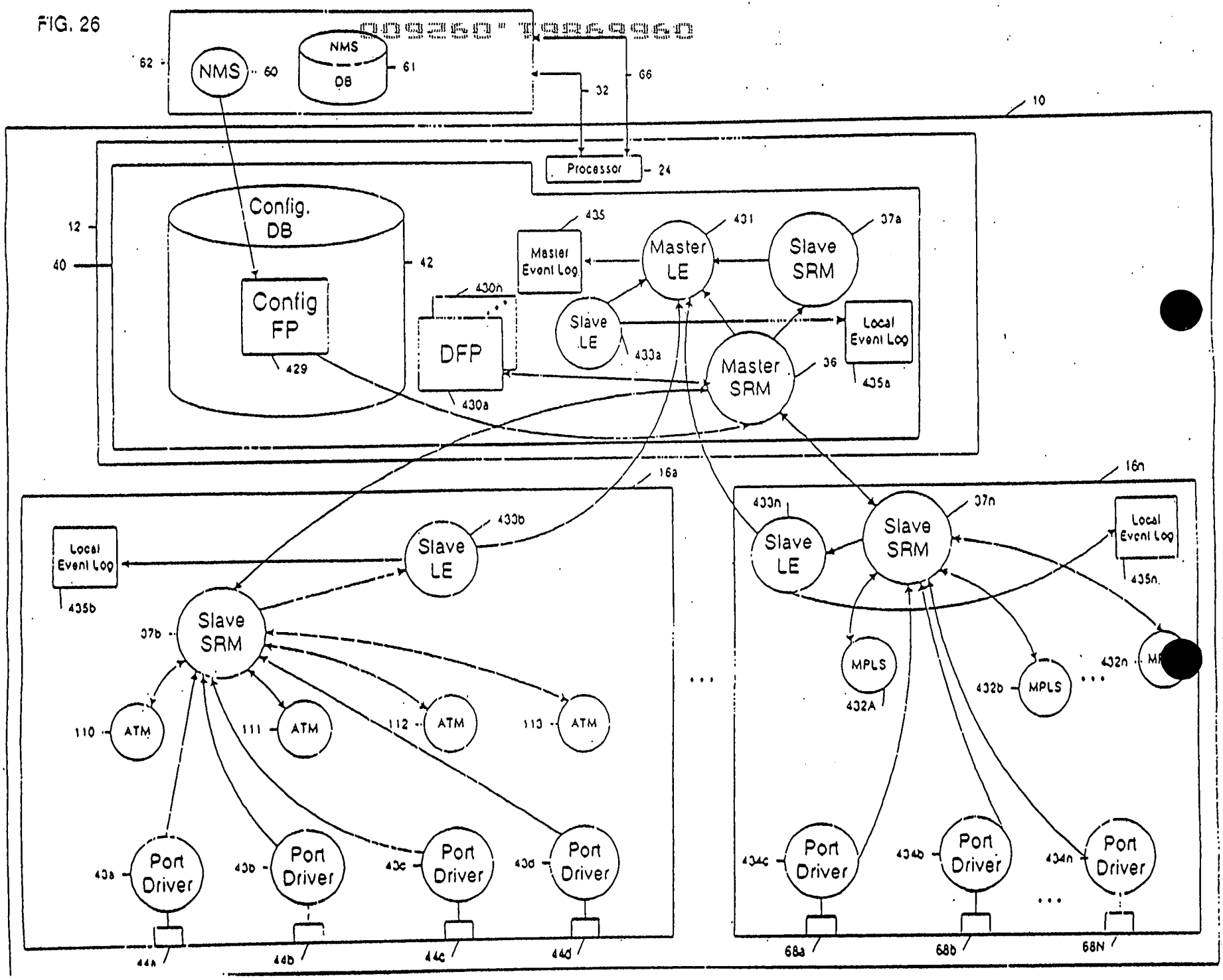

400
402
404
406
ATM Group 1
ATM Group 2
ATM Group 3
ATM Group 4
ATM-1
ATM-2
ATM-3
ATM-4
110
111
112
113
123
124
125
115
116
117
118
119
120
121
122
ATM-IF 1
ATM-IF 2
ATM-IF 3
ATM-IF 4
ATM-IF 5
ATM-IF 6
ATM-IF 7
ATM-IF 8
ATM-IF 9
ATM-IF 10
ATM-IF 11
SE1
SE2
SE3
SE4
SE5
SE6
SE7
SE8
SE9
43a
43b
43c
43d
Pon Driver
16a
44a
44b
44c
44d
OC-48 Pon 1
OC-48 Pon 2
OC-48 Pon 3
OC-48 Pon 4

FIG. 26


NMS
62
NMS
60
DB
61
32
66
10
Processor
24
12
40
Config.
DB
42
Config
FP
429
435
Master
Event Log
431
Master
LE
37a
Slave
SRM
430n
DFP
430a
Slave
LE
433a
Local
Event Log
435a
Master
SRM
36
16a
Local
Event Log
435b
Slave
LE
433b
37b
Slave
SRM
110
ATM
111
ATM
112
ATM
113
ATM
43a
Port
Driver
43b
Port
Driver
43c
Port
Driver
43d
Port
Driver
44a
44b
44c
44d
16n
433n
Slave
LE
37n
Slave
SRM
Local
Event Log
435n
MPLS
432A
MPLS
432b
432n
434c
Port
Driver
434b
Port
Driver
434n
Port
Driver
68a
68b
68N

0098260 "T9869960

FIG. 27

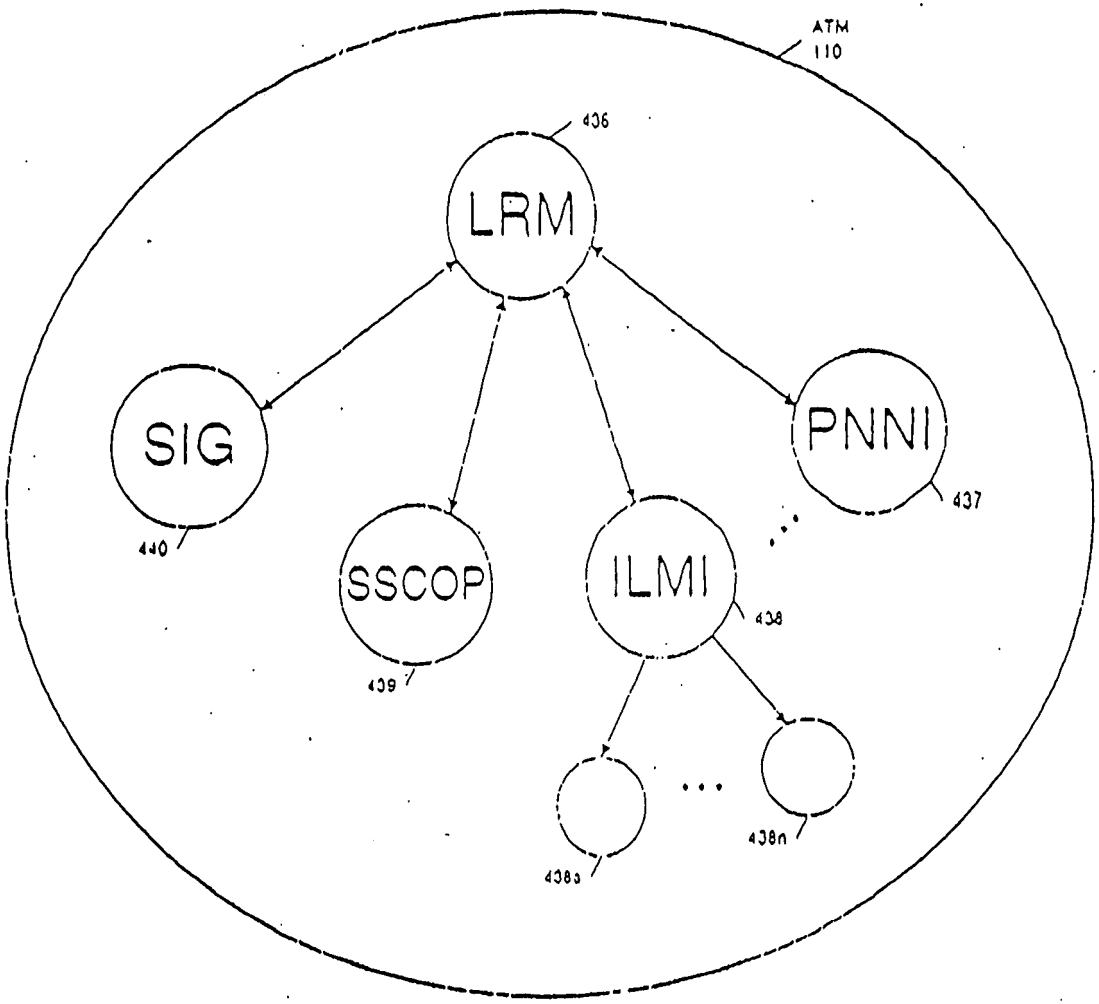


FIG. 28

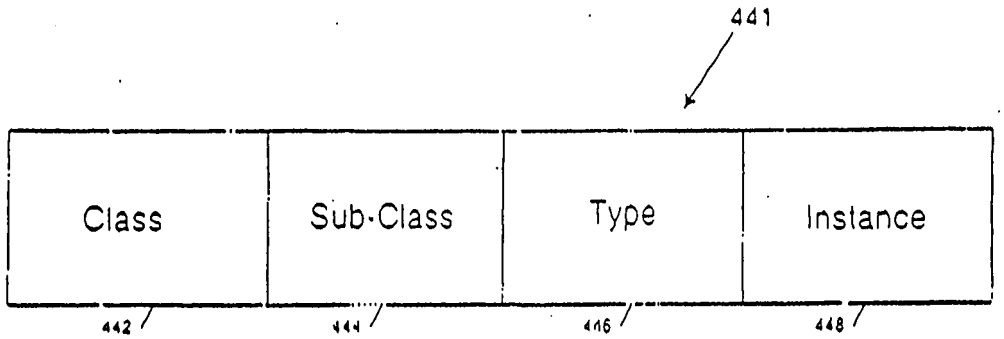


FIG. 29

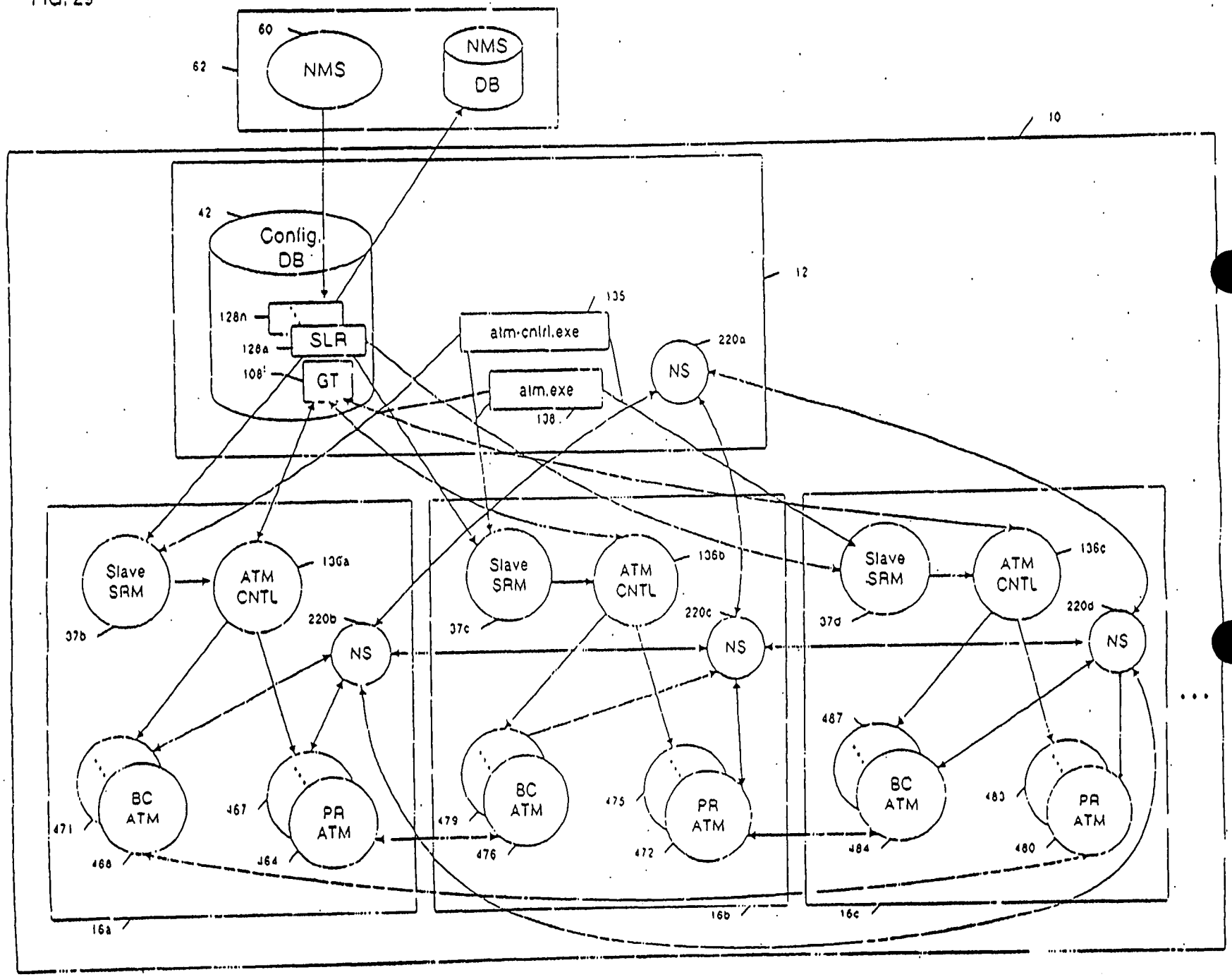

60
NMS
62
NMS
DB
10
42
Config.
DB
12
128n
128a
108'
SLR
GT
135
atm-cntrl.exe
atm.exe
138
220a
NS
Slave
SRM
37b
ATM
CNTL
136a
220b
NS
BC
ATM
471
468
PR
ATM
467
464
16a
Slave
SRM
37c
ATM
CNTL
136b
220c
NS
BC
ATM
479
476
PR
ATM
475
472
16b
Slave
SRM
37d
ATM
CNTL
136c
220d
NS
BC
ATM
487
484
PR
ATM
483
480
16c

FIG.30

Group Table 108

	Group #	Primary Card LID (447)	Backup Card LID (449)	...
450	1	30	31	
451	2	30	31	
452	3	30	31	
453	4	30	31	
454	5	31	32	
455	6	31	32	
456	7	31	32	
457	8	31	32	
458	9	32	30	
459	10	32	30	
460	11	32	30	
461	12	32	30	
	⋮	⋮	⋮	⋮

Oracle - Exhibit 1004

Fig. 31a

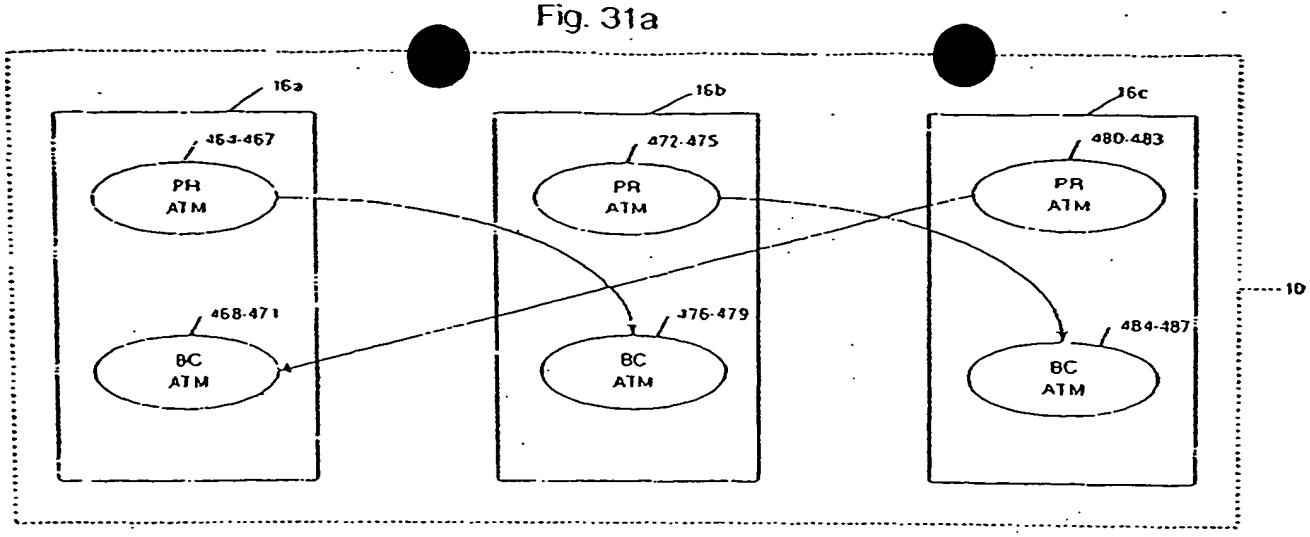


Fig. 31b

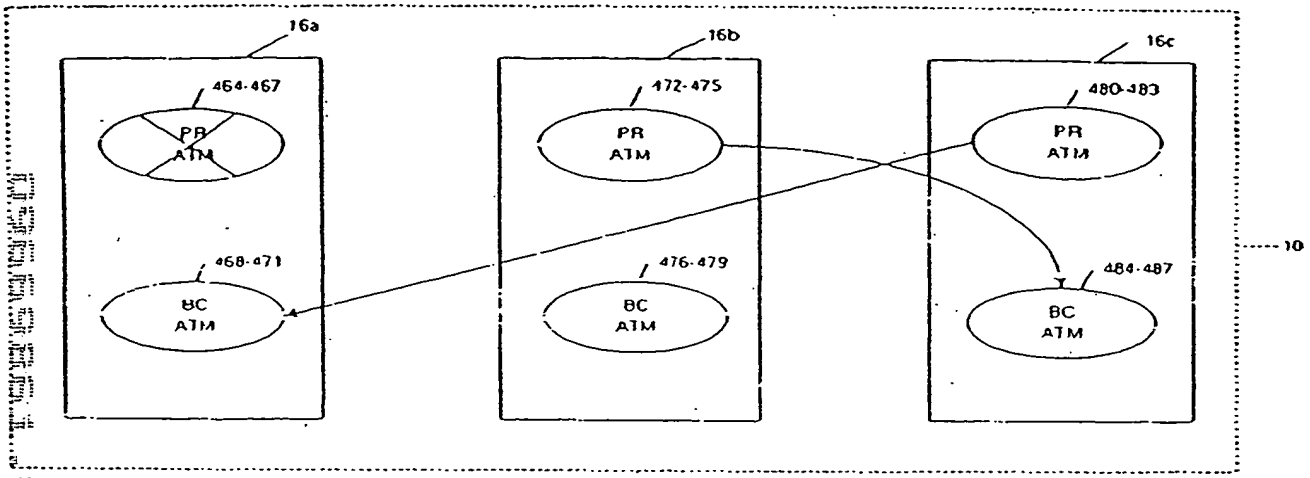


Fig. 31c

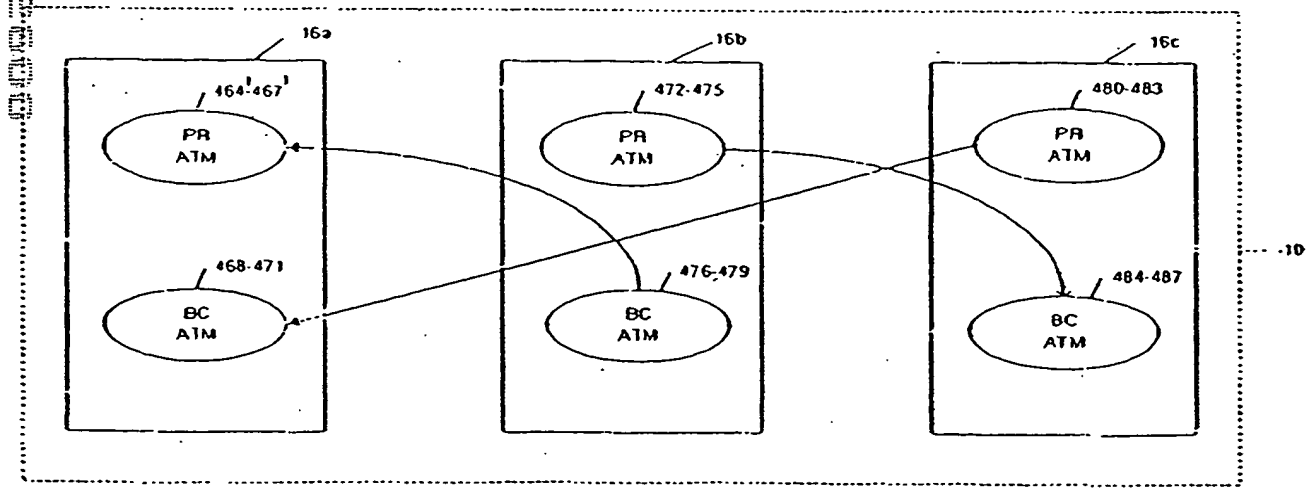


Fig. 32a

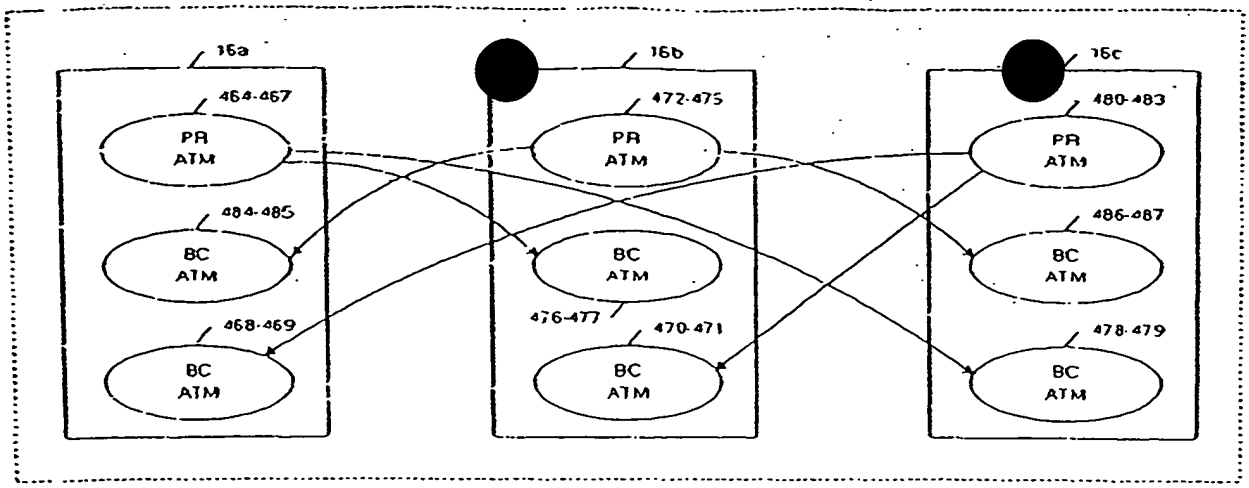


Fig. 32b

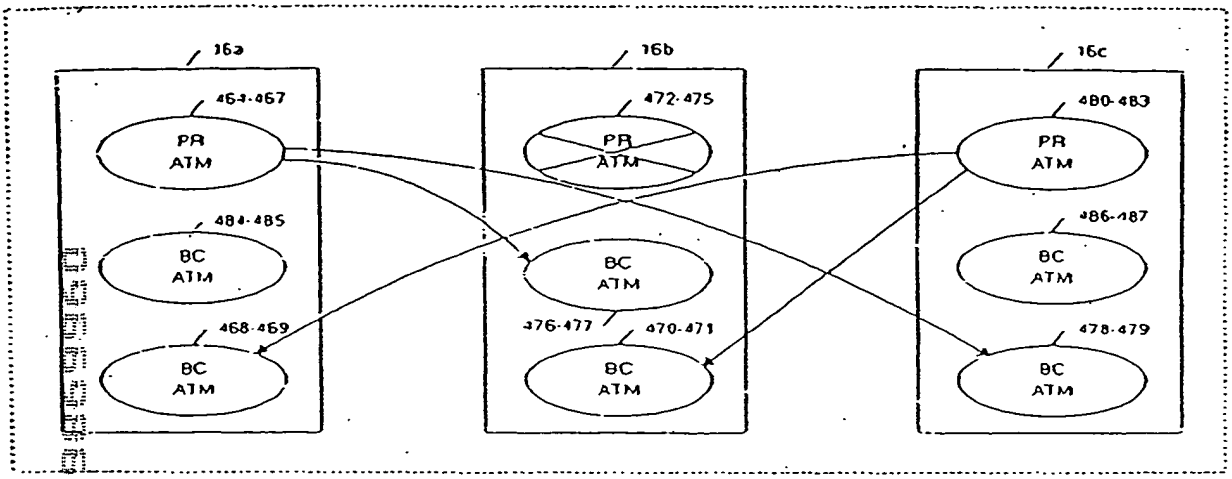
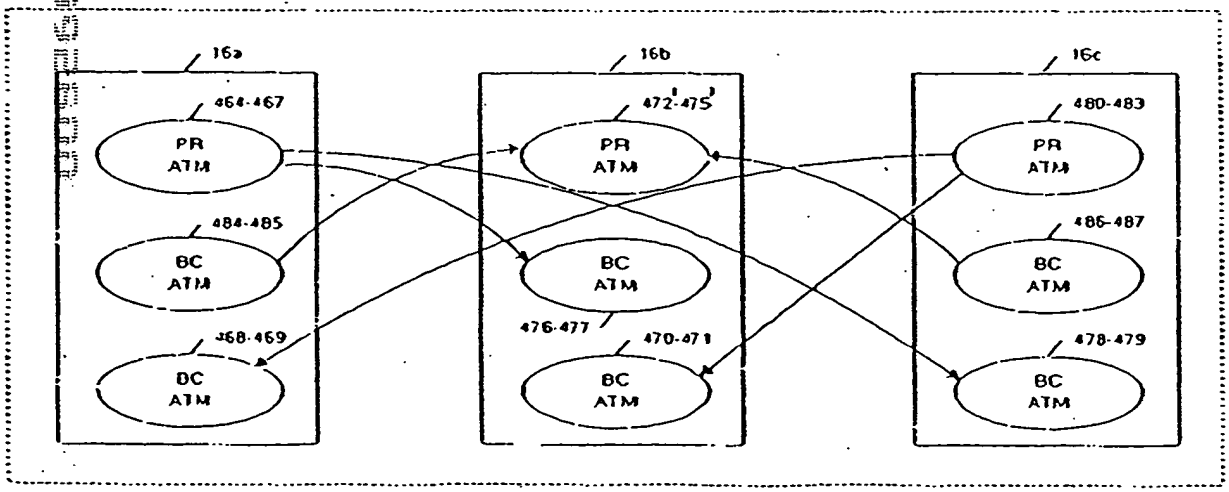
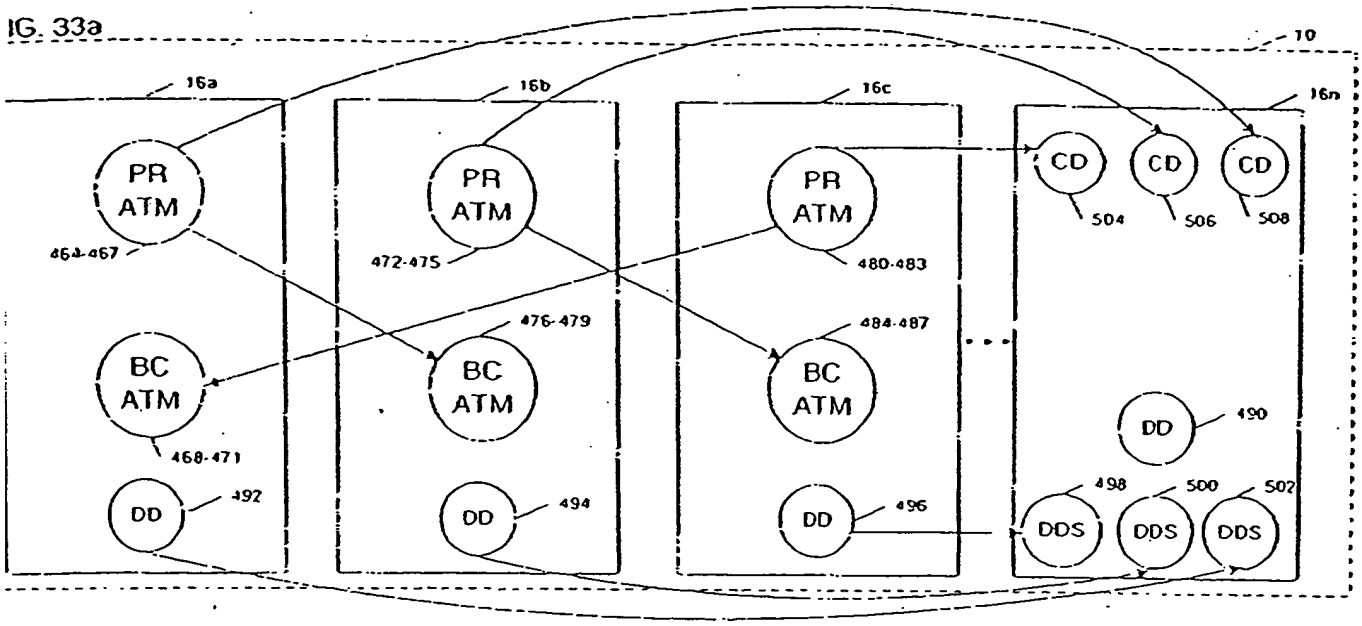


Fig. 32c



IG. 33a


10
16a
16b
16c
16n
PR ATM
464-467
472-475
480-483
BC ATM
468-471
476-479
484-487
DD
492
494
496
CD
504
506
508
490
DDS
498
500
502

IG. 33b

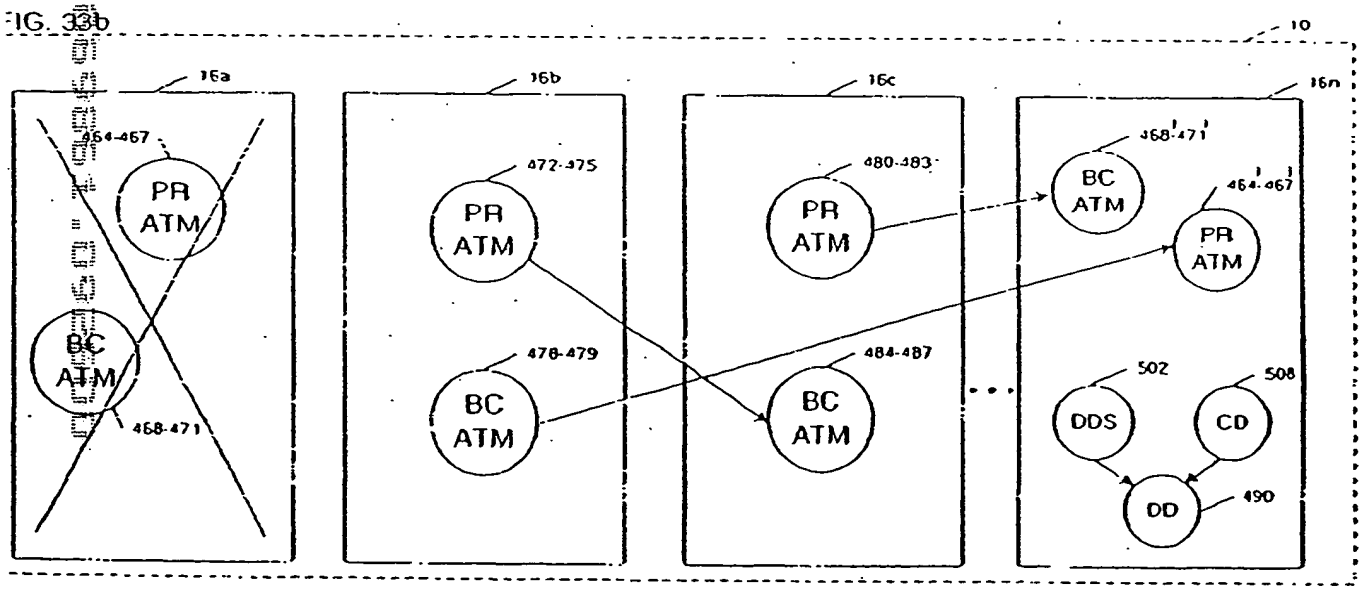

10
16a
16b
16c
16n
464-467
PR ATM
BC ATM
468-471
472-475
476-479
480-483
484-487
DDS
502
CD
508
DD
490

Fig. 33c

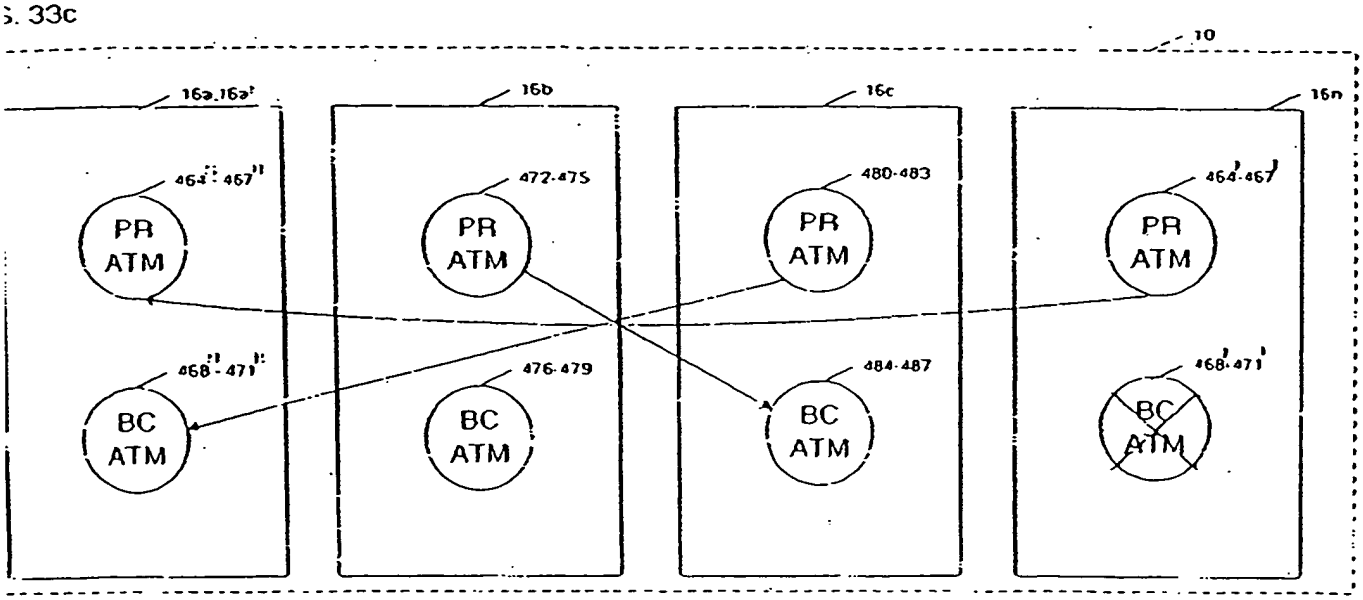


Fig. 33d

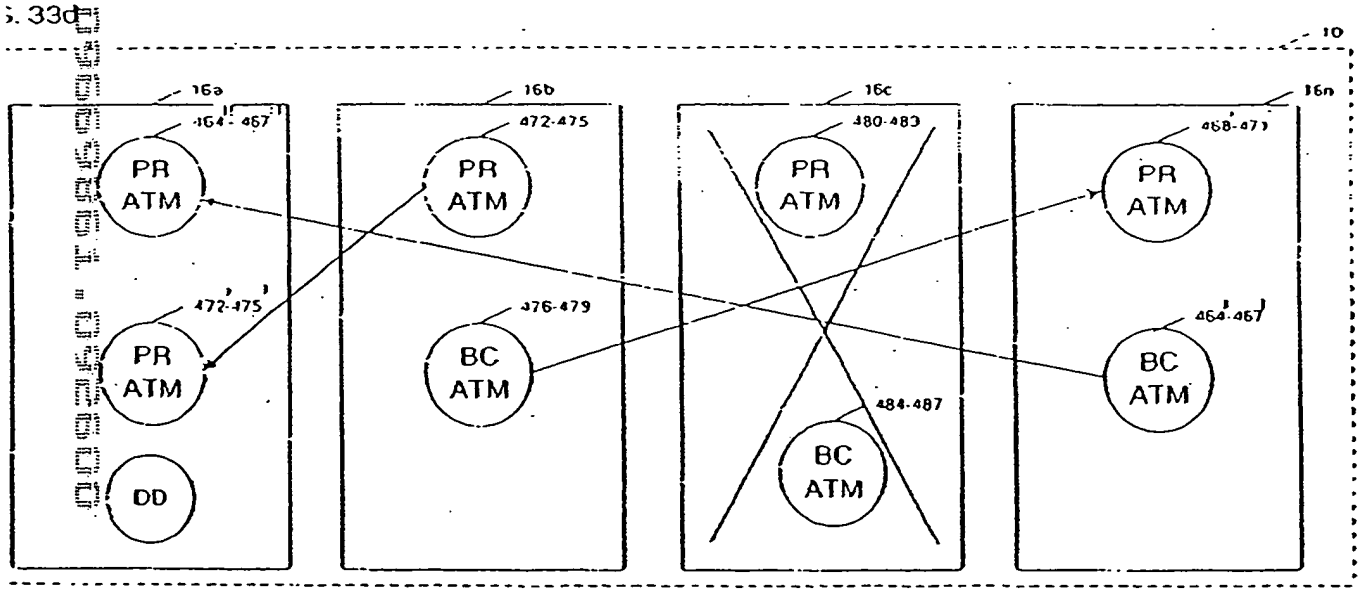
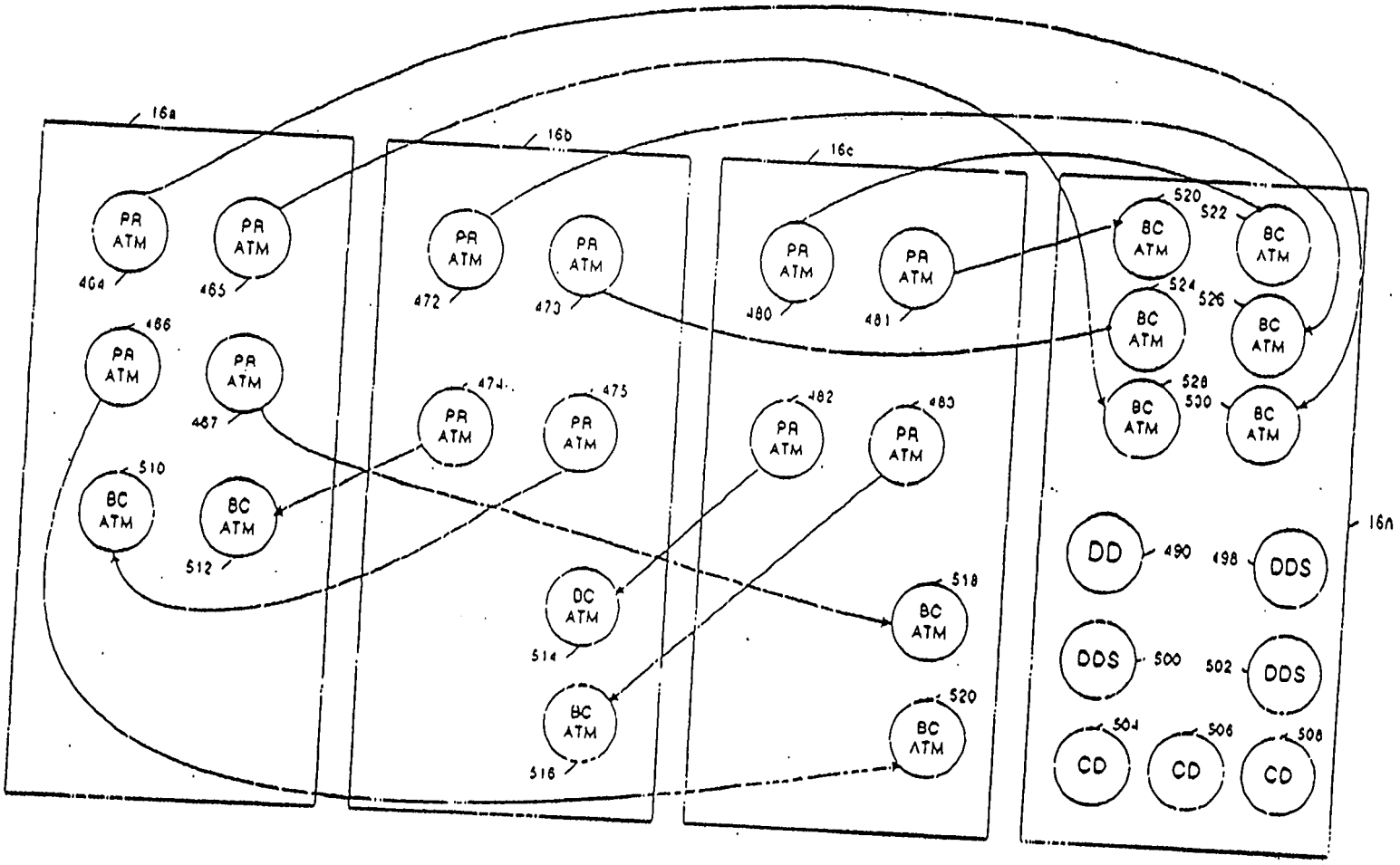


Fig. 34a


16a
16b
16c
16n
PR ATM
BC ATM
DC ATM
DD
DDS
CD
464
465
466
467
472
473
474
475
480
481
482
483
510
512
514
516
518
520
522
524
526
528
530
490
498
500
502
504
506
508

009360 "T9869960

FIG. 34b

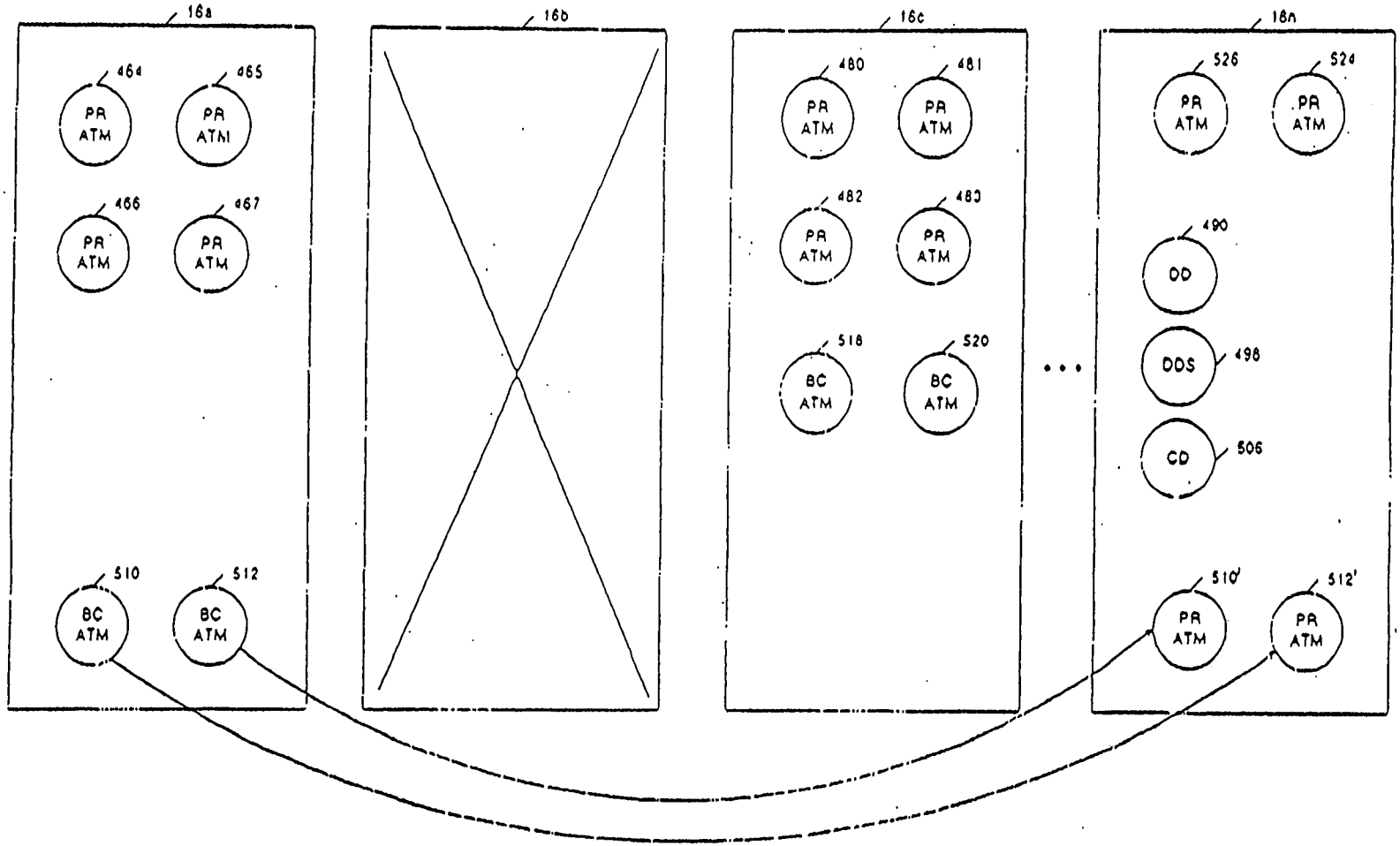
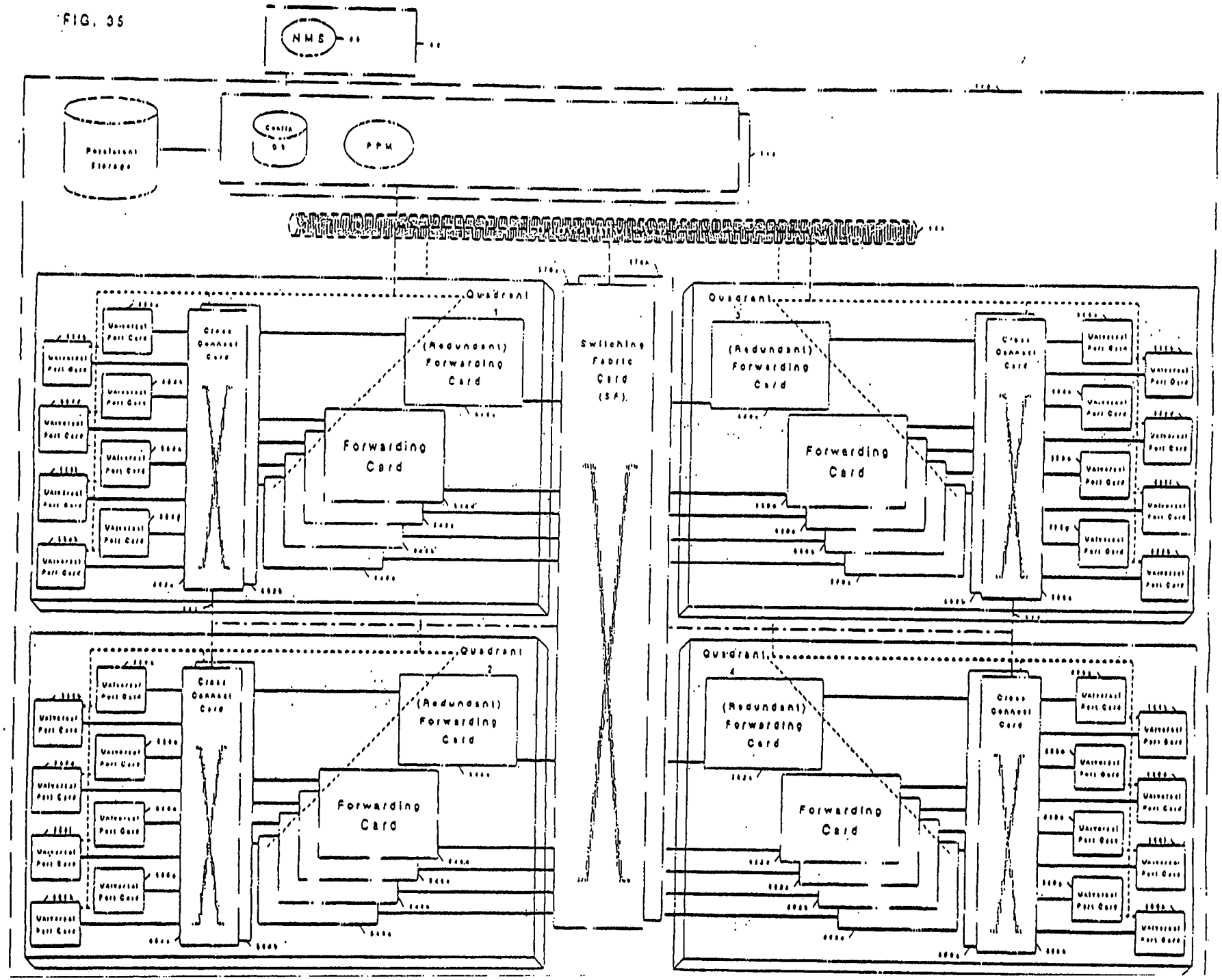


FIG. 35



By: Equipe Communications; 781 795 2031; Jun-7-00 4:55PM; Page 2/2

Page 2
Jul-12-00 3:56PM;
781 795 2031;
t By: Equipe Communications;

FIG. 36

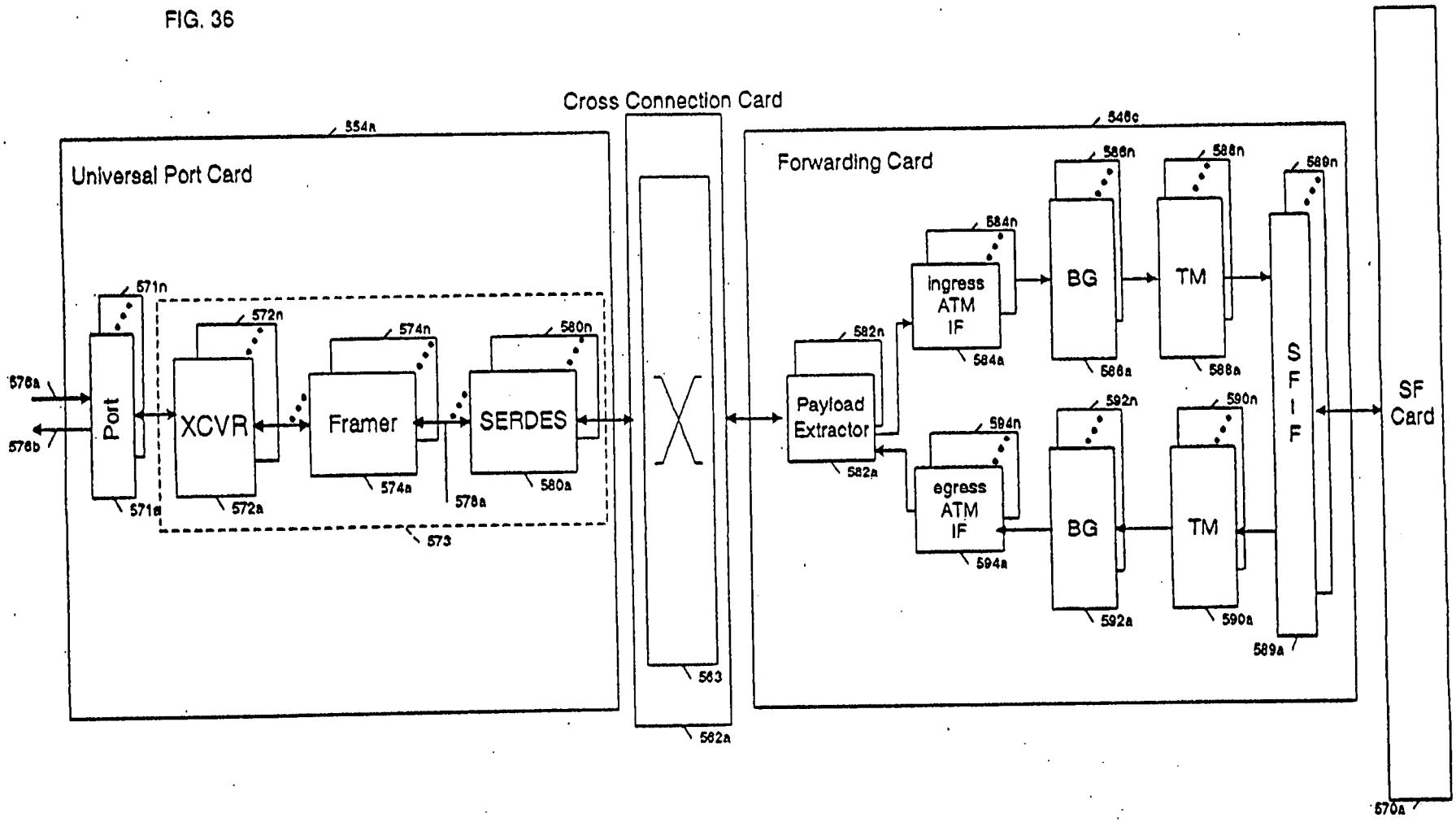


FIG. 37

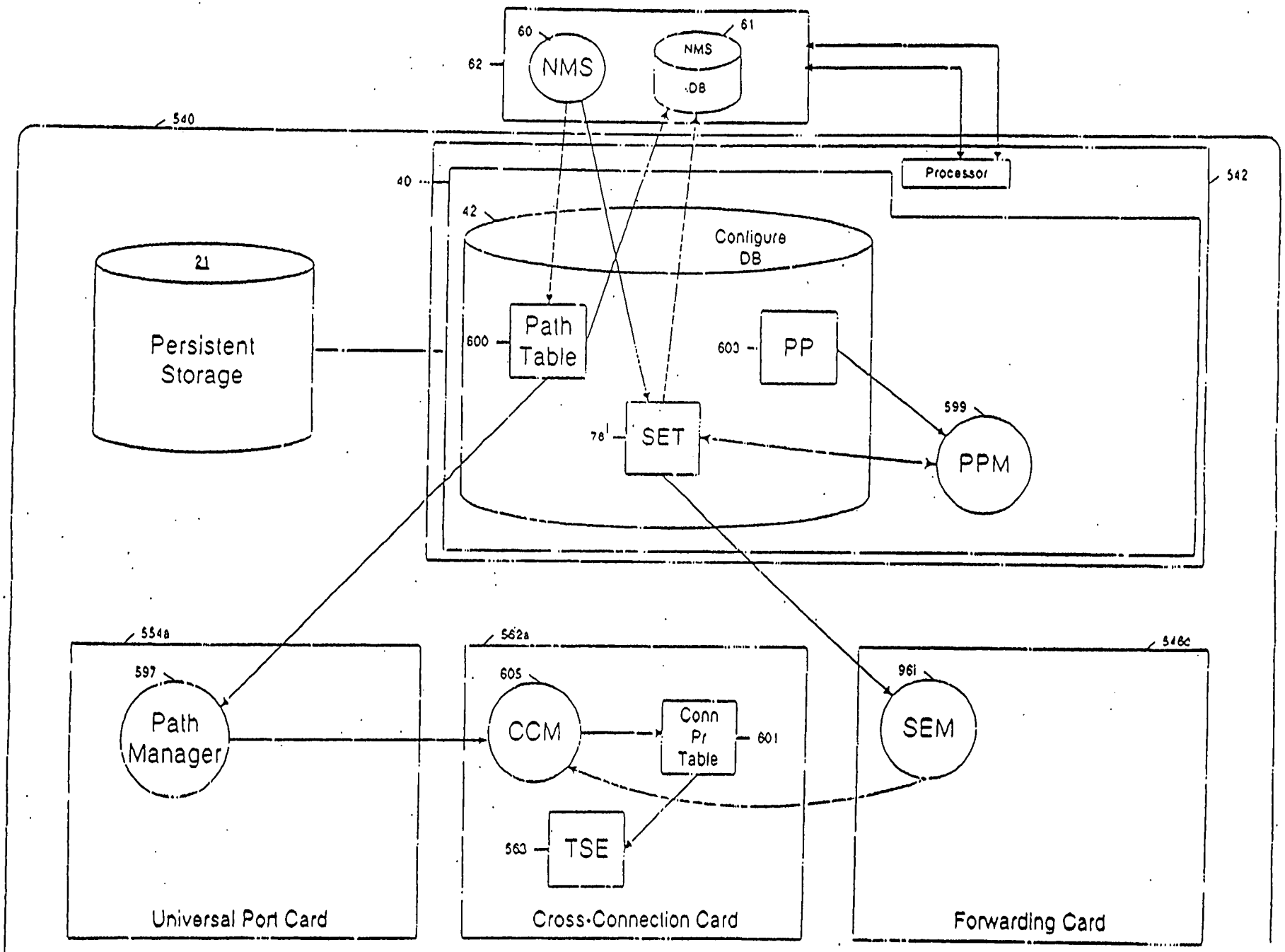

60
NMS
62
61
NMS
DB
540
542
Processor
40
42
Configure DB
21
Persistent Storage
600
Path Table
603
PP
599
78'
SET
PPM
554a
597
Path Manager
562a
605
CCM
Conn Pr Table
601
563
TSE
546c
961
SEM
Universal Port Card
Cross-Connection Card
Forwarding Card

FIG. 38

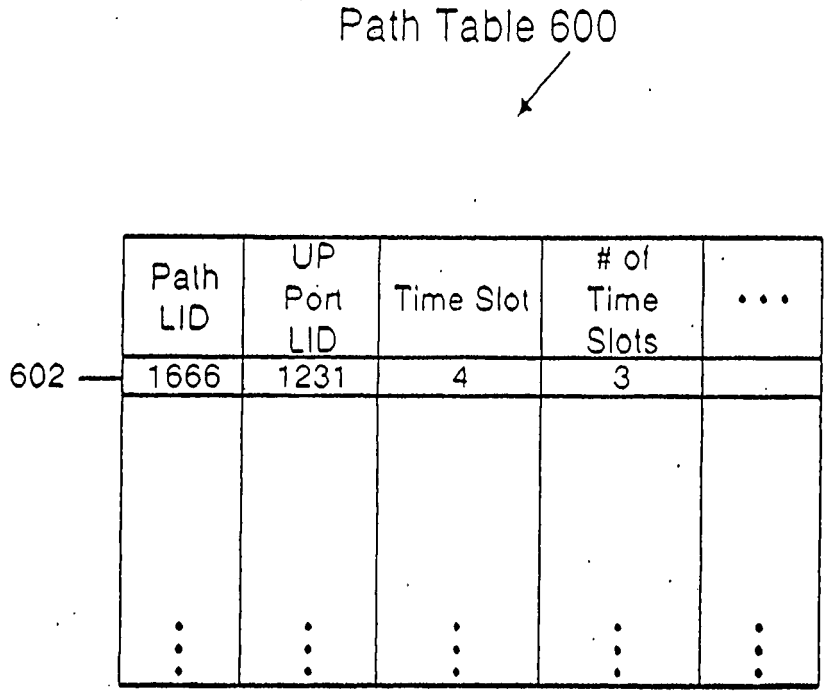

Path Table 600
Path LID
UP Port LID
Time Slot
# of Time Slots
• • •
602
1666
1231
4
3

FIG. 39

Service End Point Table 76'

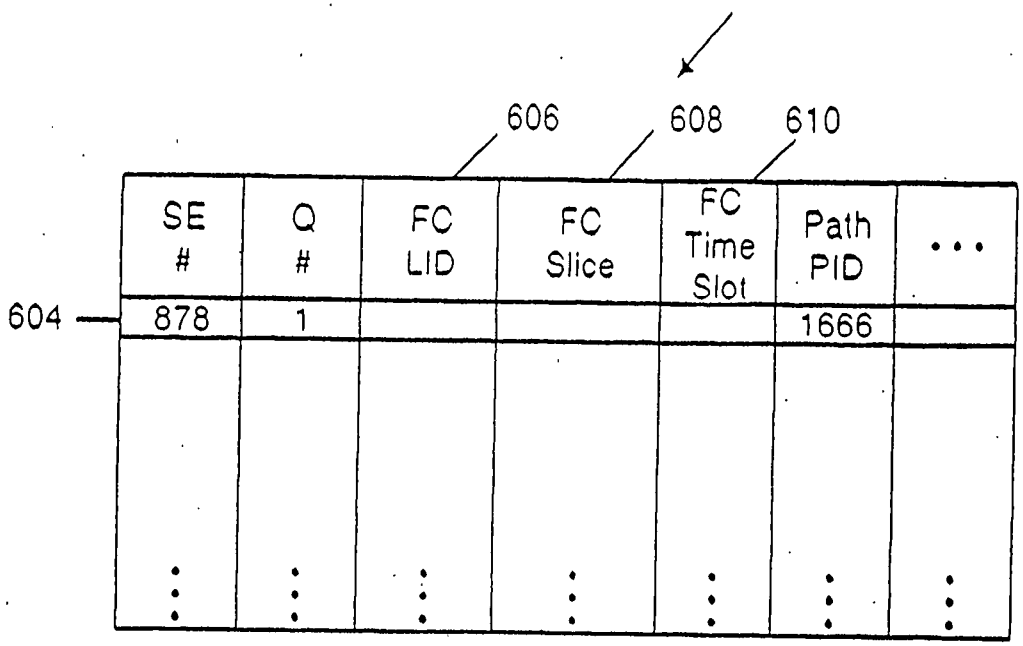


Fig. 40

Sent By: Equipe Communications; 781 795 2031; Jul-6-00 4:25PM; Page 2

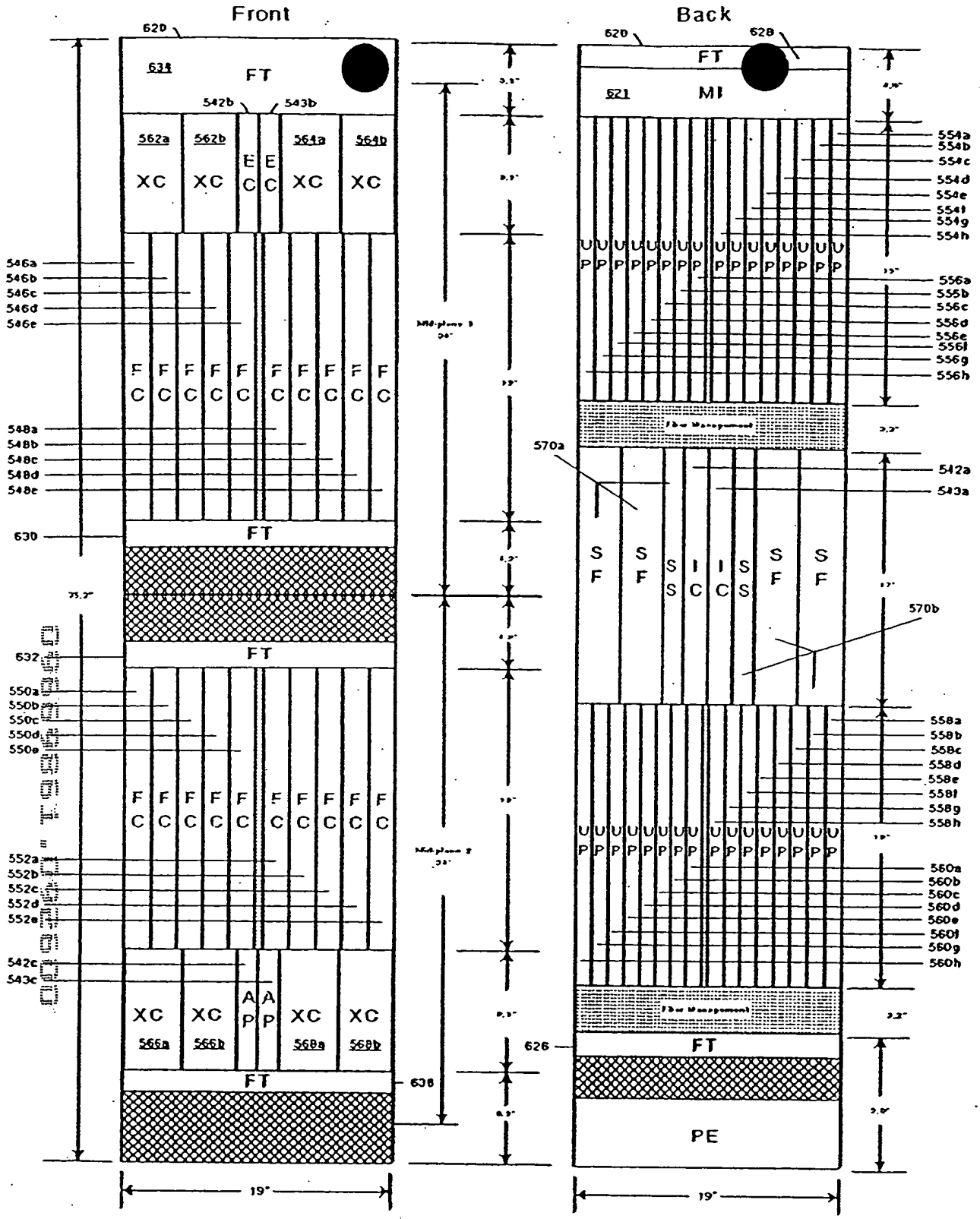


FIGURE 41a

FIGURE 41b

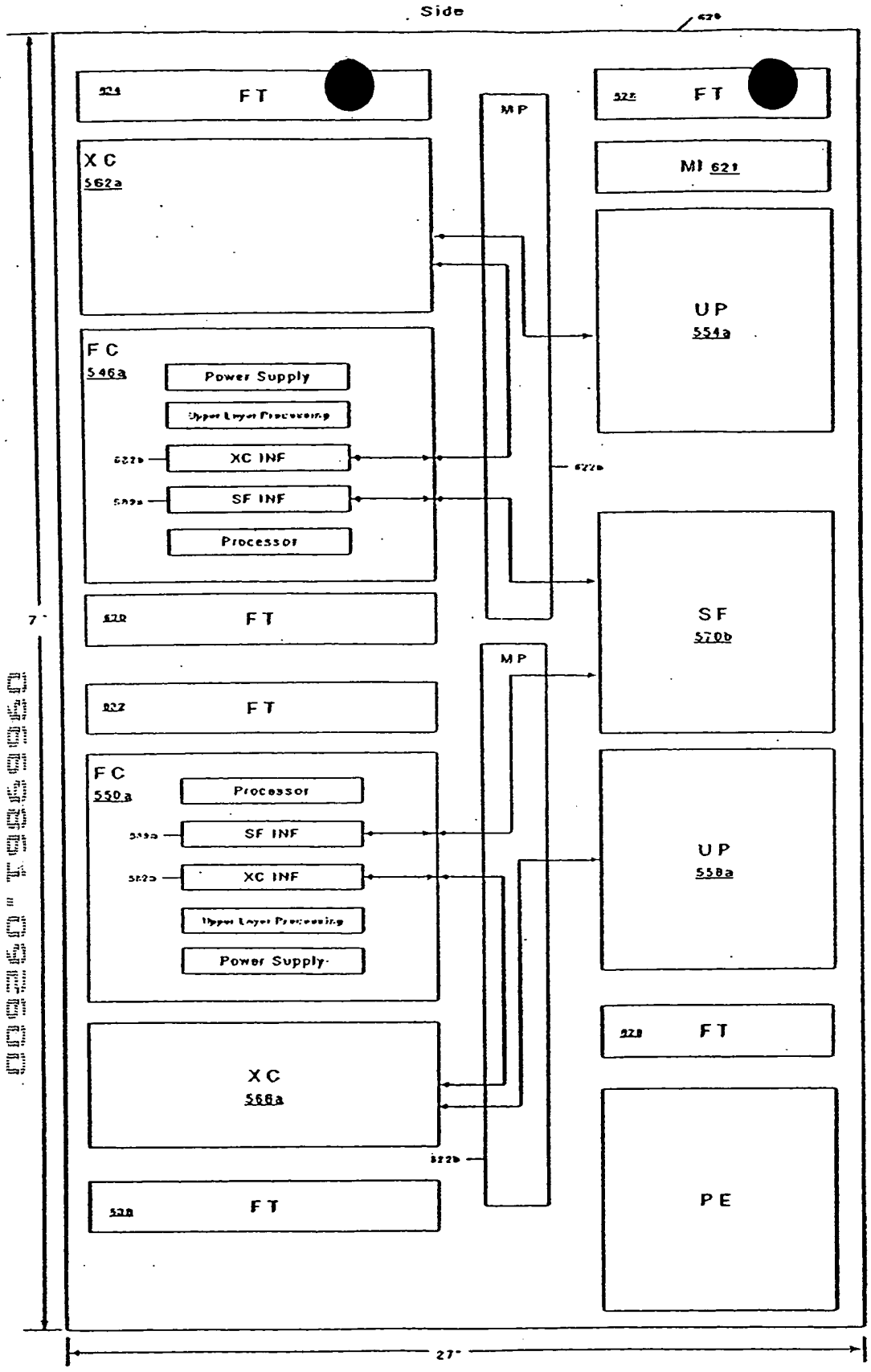

Side
FT
XC
562a
MP
FT
MI 621
UP
554a
FC
546a
Power Supply
XC INF
SF INF
Processor
FT
SF
570b
MP
FT
FC
550a
Processor
SF INF
XC INF
Power Supply
UP
558a
FT
XC
566a
FT
PE
7"
27"

FIGURE 41C

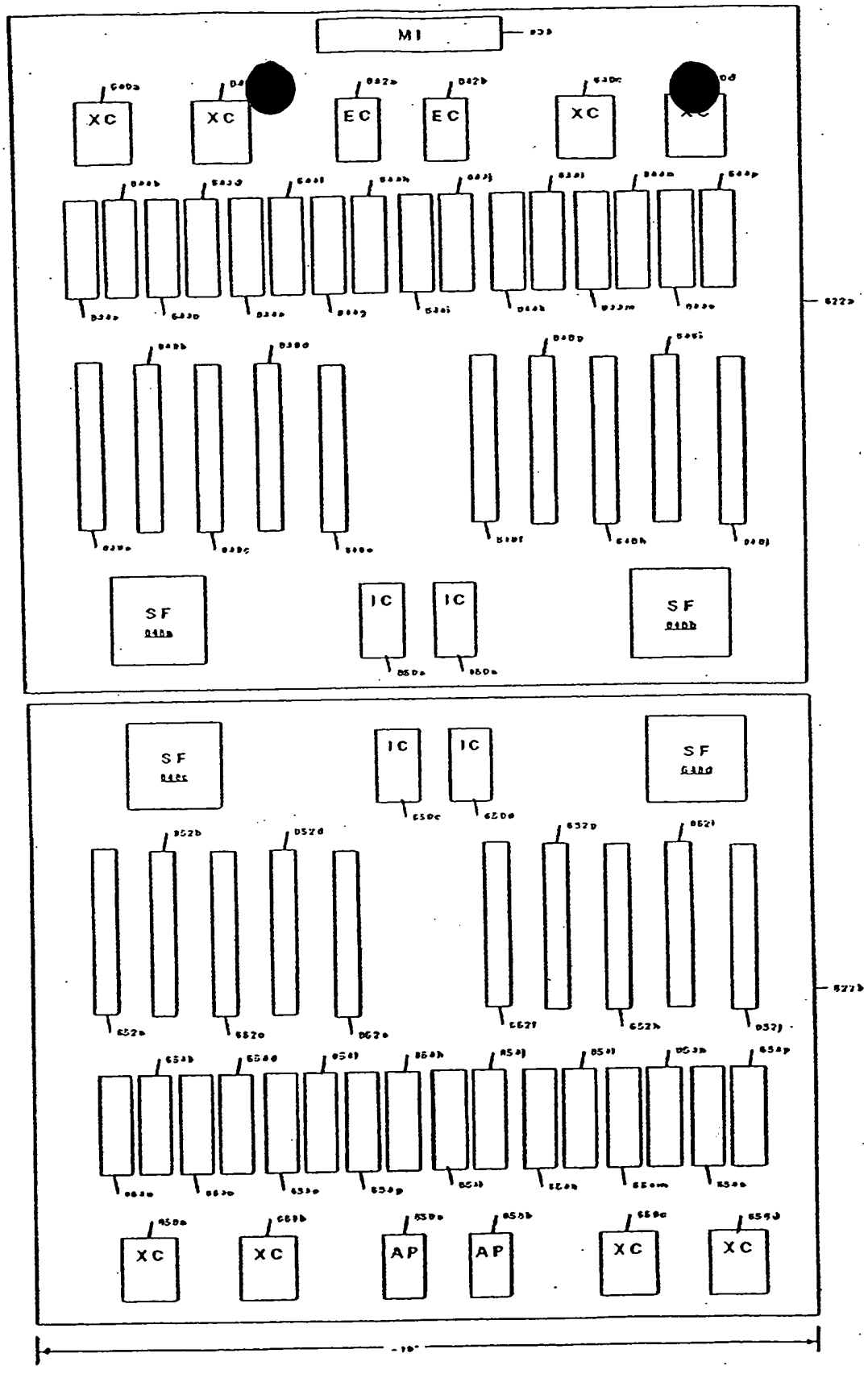
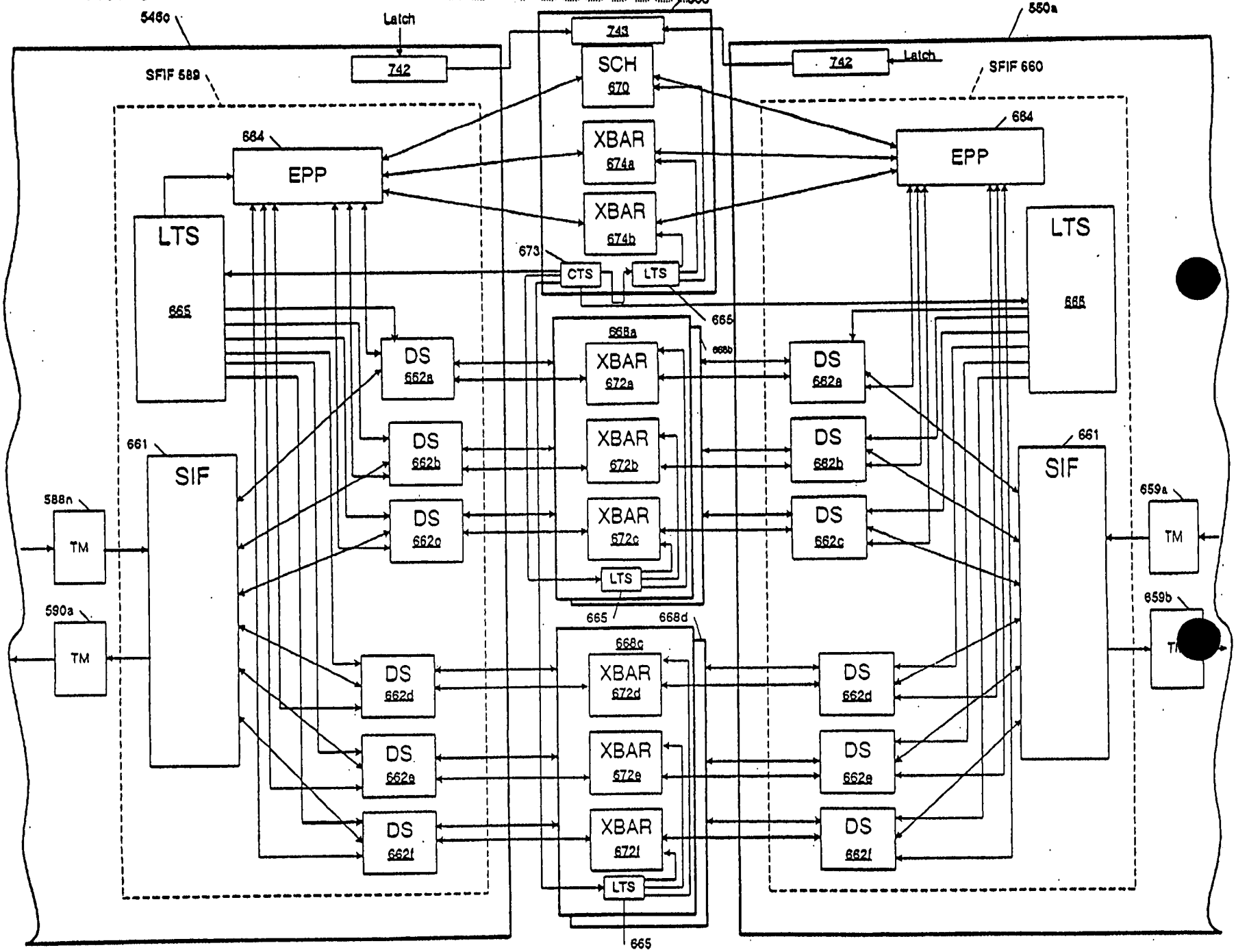


FIGURE 42

FIG. 43



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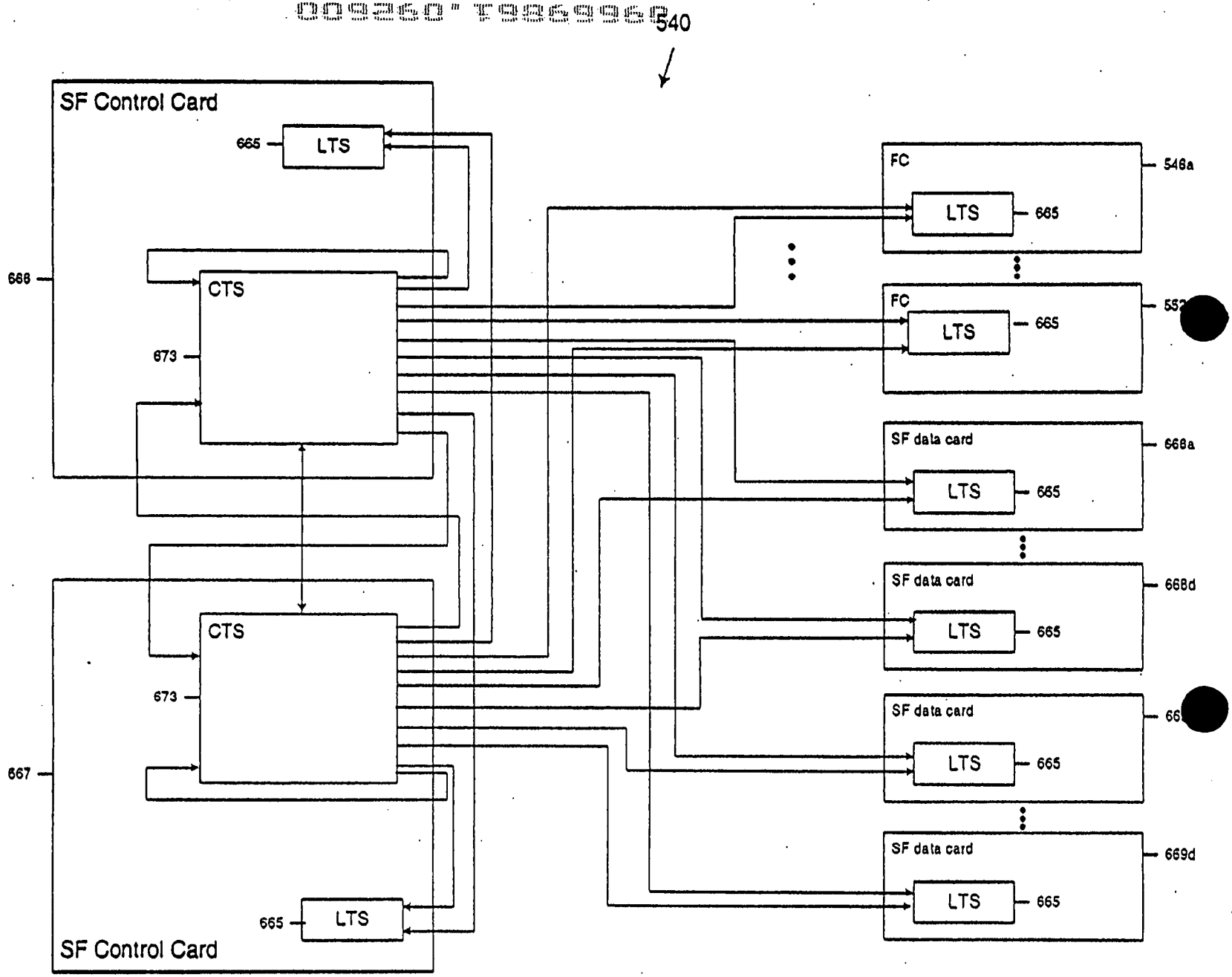
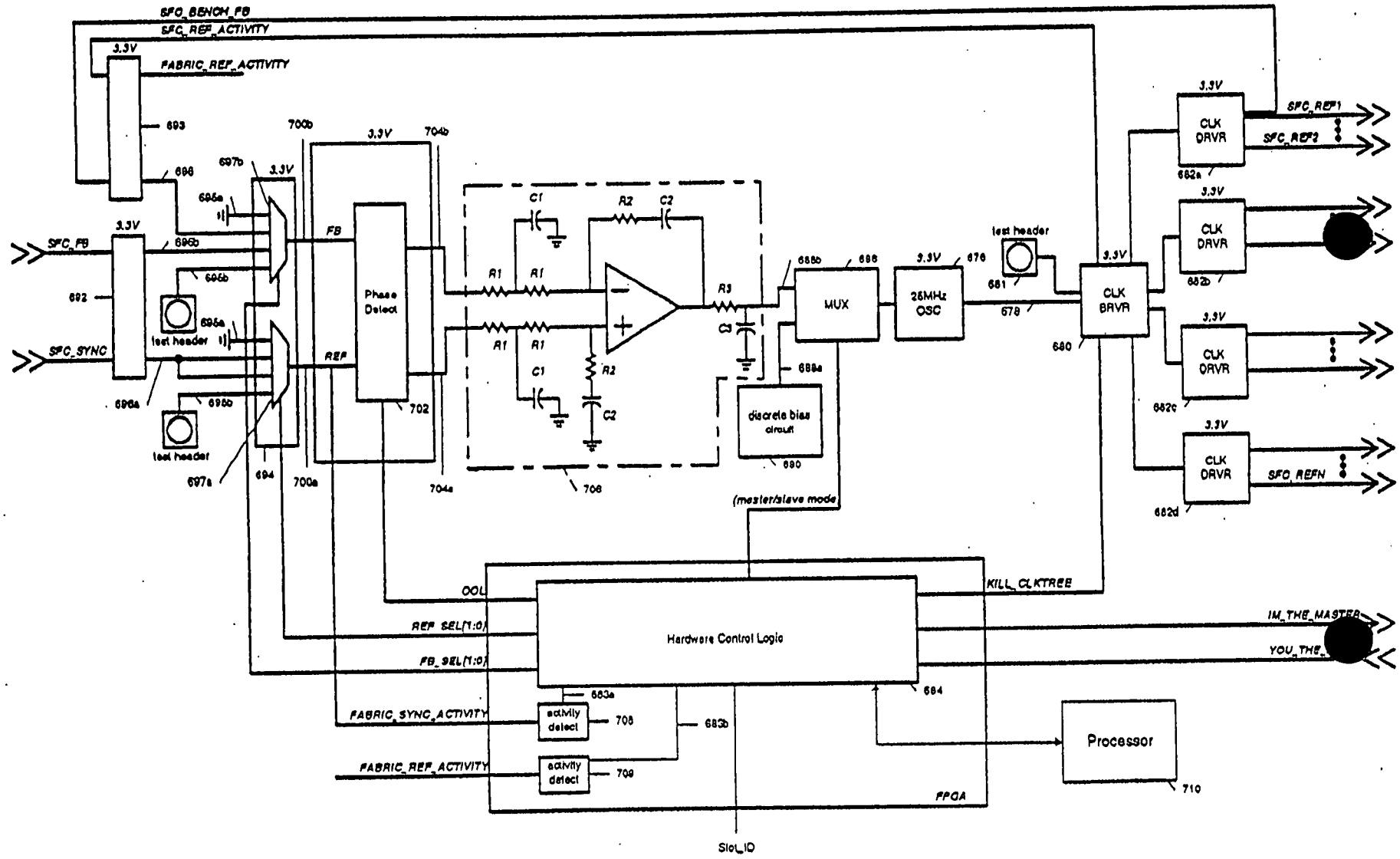

540
SF Control Card
665
LTS
668
CTS
673
667
CTS
673
665
LTS
SF Control Card
FC
LTS
665
546a
FC
LTS
665
SF data card
LTS
665
668a
SF data card
LTS
665
668d
SF data card
LTS
665
SF data card
LTS
665
669d

FIG. 44

Sent By: Equipe Communications; 781 795 2031; Jul-6-00 4:26PM; Page 5

FIG. 45



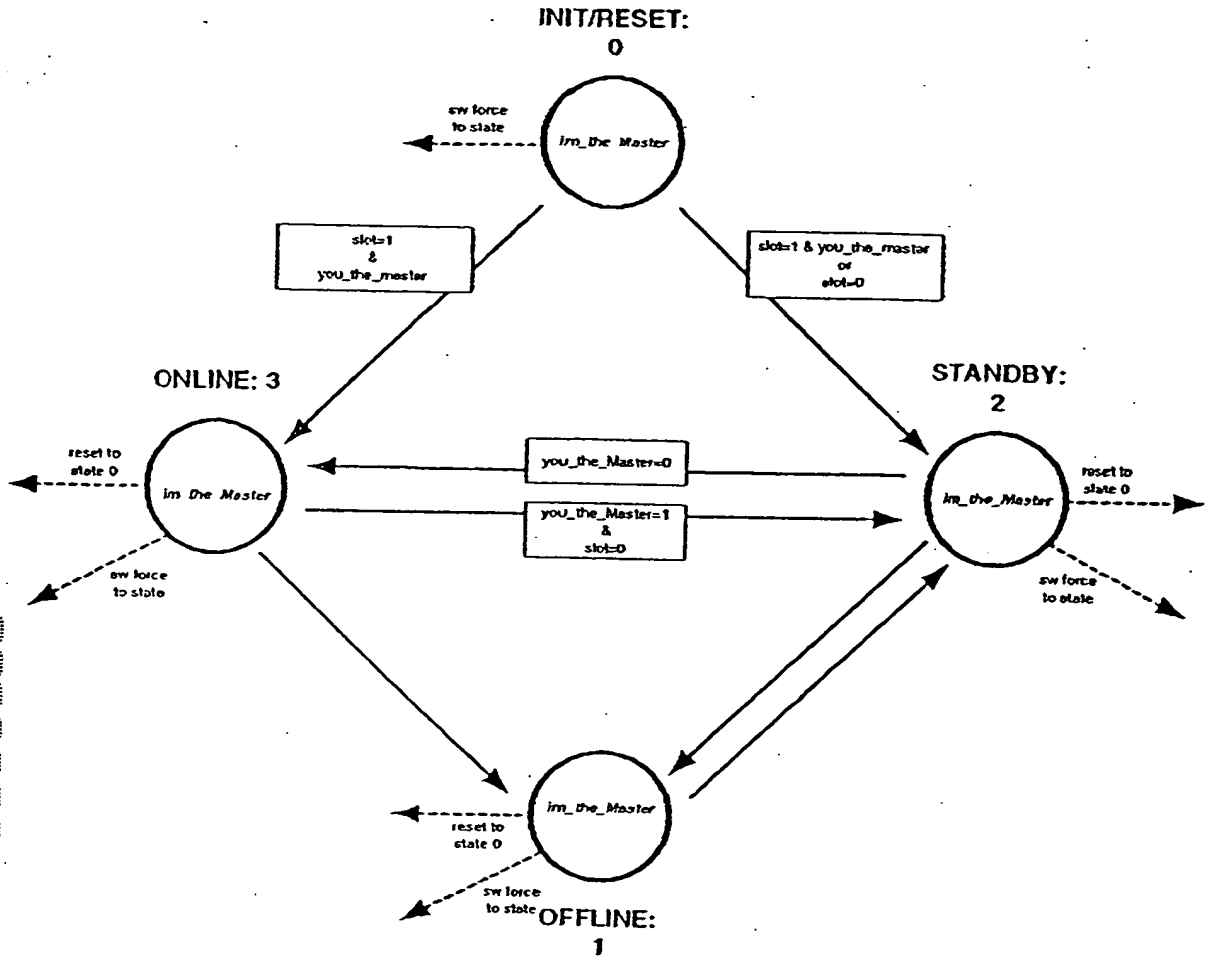

INIT/RESET:
0
sw force
to state
im_the_Master
slot=1
&
you_the_master
slot=1 & you_the_master
or
slot=0
ONLINE: 3
STANDBY:
2
reset to
state 0
im_the_Master
you_the_Master=0
you_the_Master=1
&
slot=0
im_the_Master
reset to
state 0
sw force
to state
sw force
to state
im_the_Master
reset to
state 0
sw force
to state
OFFLINE:
1

FIG. 46

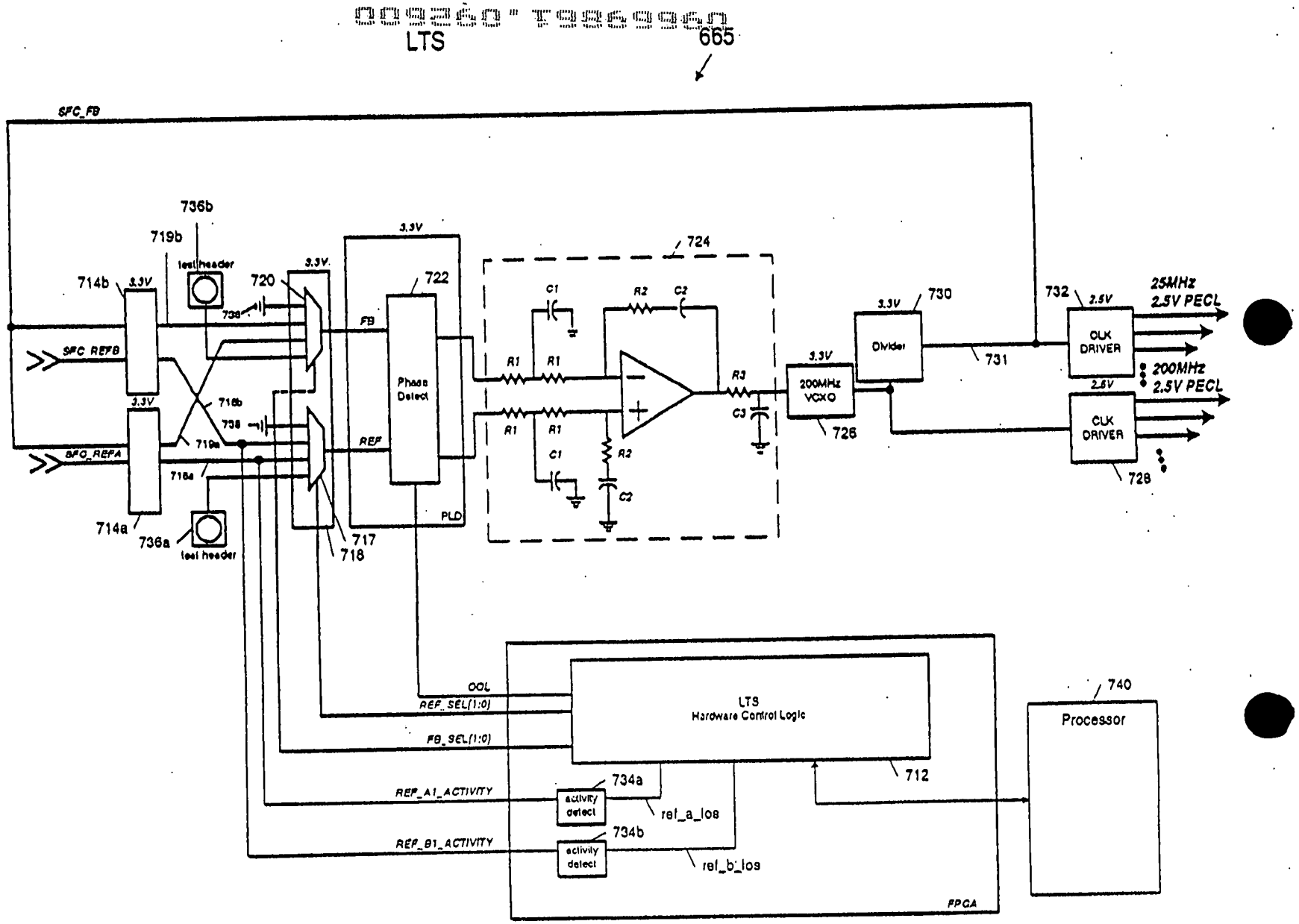

LTS
665
SFC_FB
736b
719b
test header
714b
3.3V
720
738
SFC REFB
716b
719a
SFC_REFA
716a
714a
736a
test header
717
718
722
Phase Detect
FB
REF
PLD
724
C1
R2
C2
R1
R3
C3
200MHz VCXO
726
730
Divider
731
732
2.5V
CLK DRIVER
25MHz 2.5V PECL
200MHz 2.5V PECL
728
OOL
REF_SEL(1:0)
FB_SEL(1:0)
LTS Hardware Control Logic
712
740
Processor
REF_A1_ACTIVITY
REF_B1_ACTIVITY
activity detect
734a
734b
ref_a_los
ref_b_los
FPGA

FIG. 47

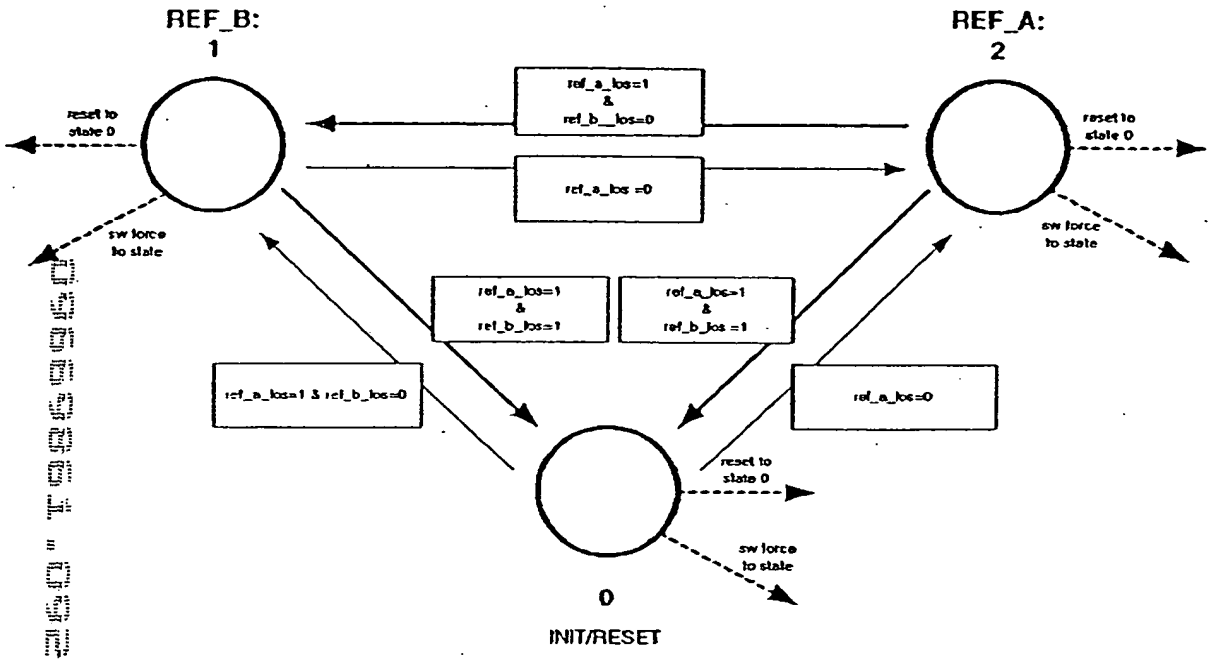

REF_B:
1
REF_A:
2
reset to state 0
sw force to state
ref_a_los=1 & ref_b_los=0
ref_a_los =0
ref_a_los=1 & ref_b_los=1
ref_a_los=1 & ref_b_los =1
ref_a_los=1 & ref_b_los=0
ref_a_los=0
0
INIT/RESET

FIG. 48

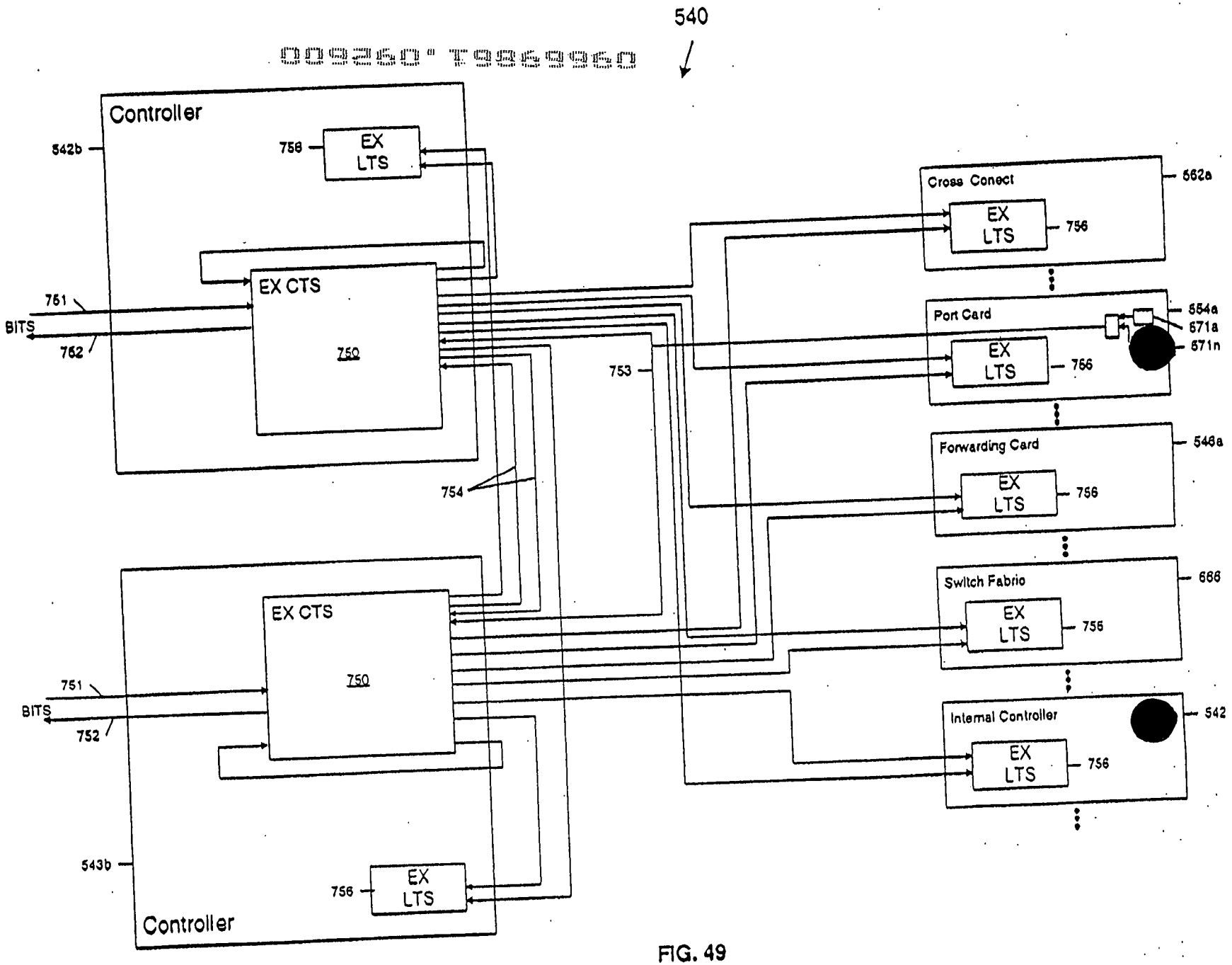

540
Controller
542b
756
EX LTS
EX CTS
750
751
BITS
752
753
754
Cross Conect
562a
Port Card
554a
571a
571n
Forwarding Card
546a
Switch Fabric
666
Internal Controller
542
543b
Controller

FIG. 49

PROCESS TEXTS, 750

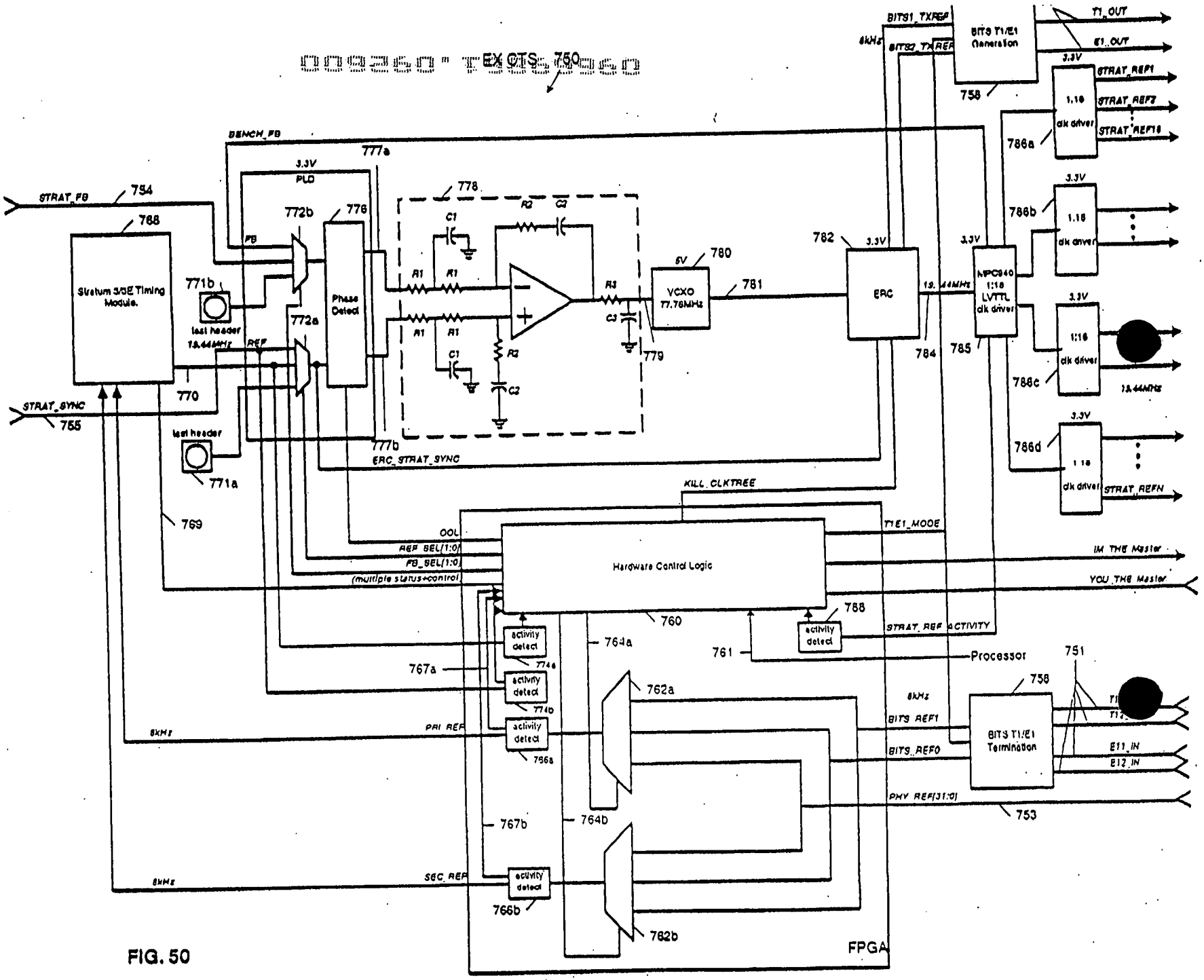


FIG. 50

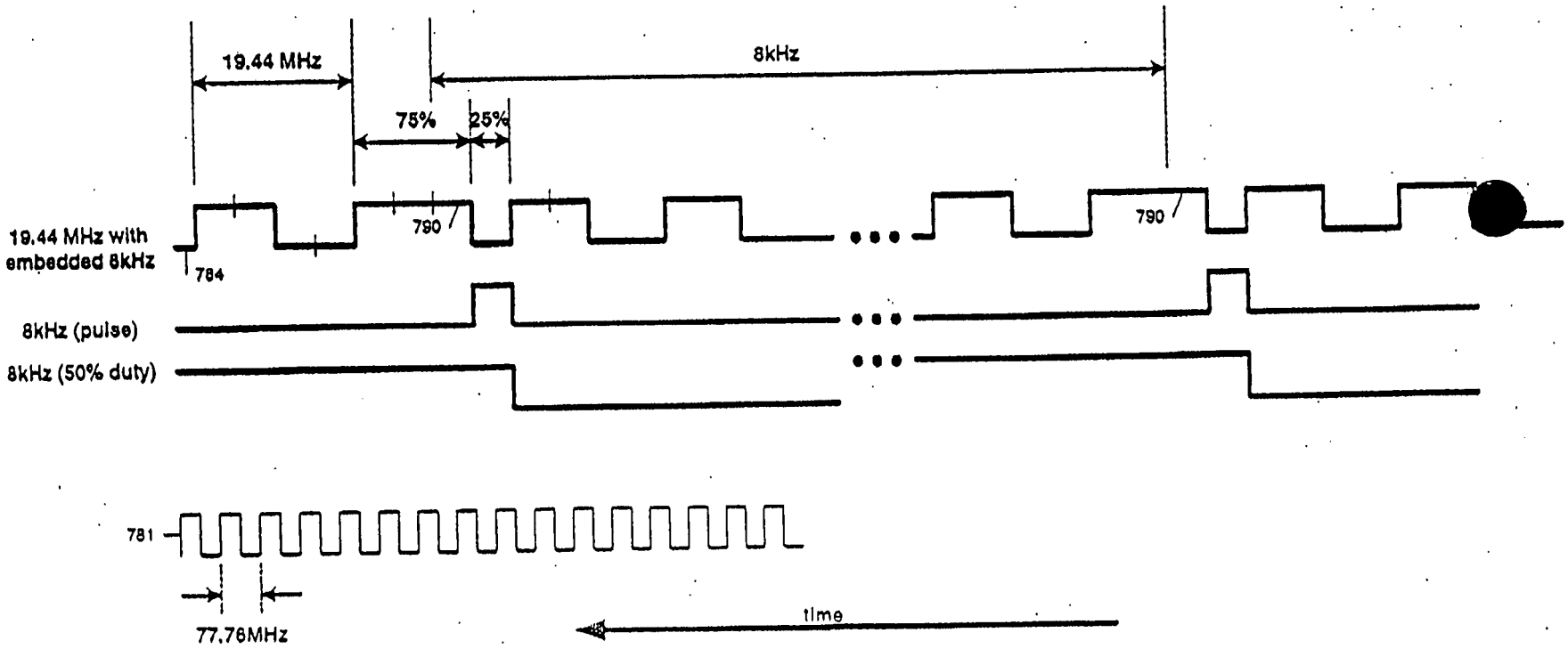

19.44 MHz
8kHz
75%
25%
19.44 MHz with
embedded 8kHz
784
790
790
8kHz (pulse)
8kHz (50% duty)
781
77.76MHz
time

FIG. 51

Sent By: Equipe Communications; 781 795 2031; Jul-6-00 4:28PM; Page 12/15

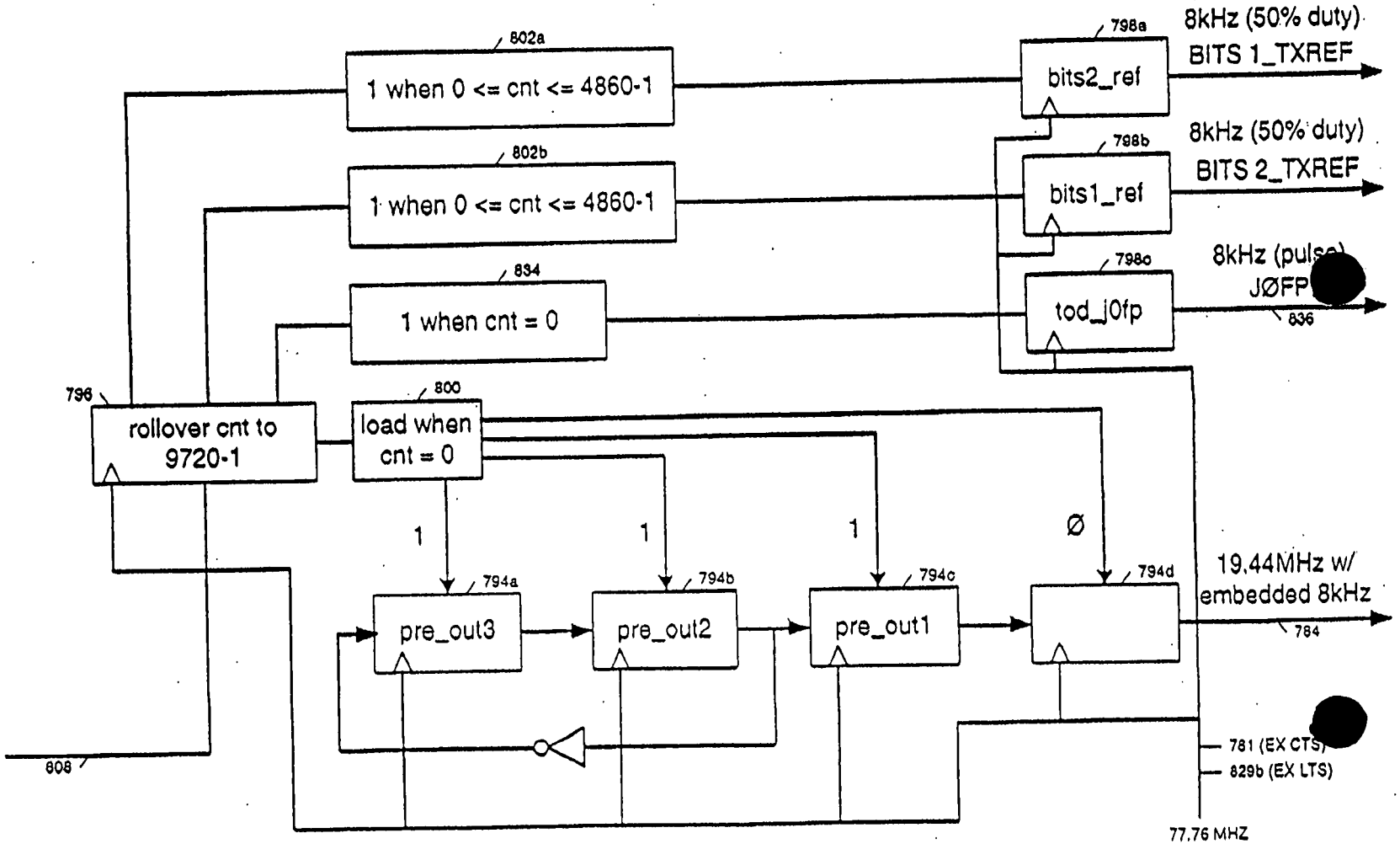
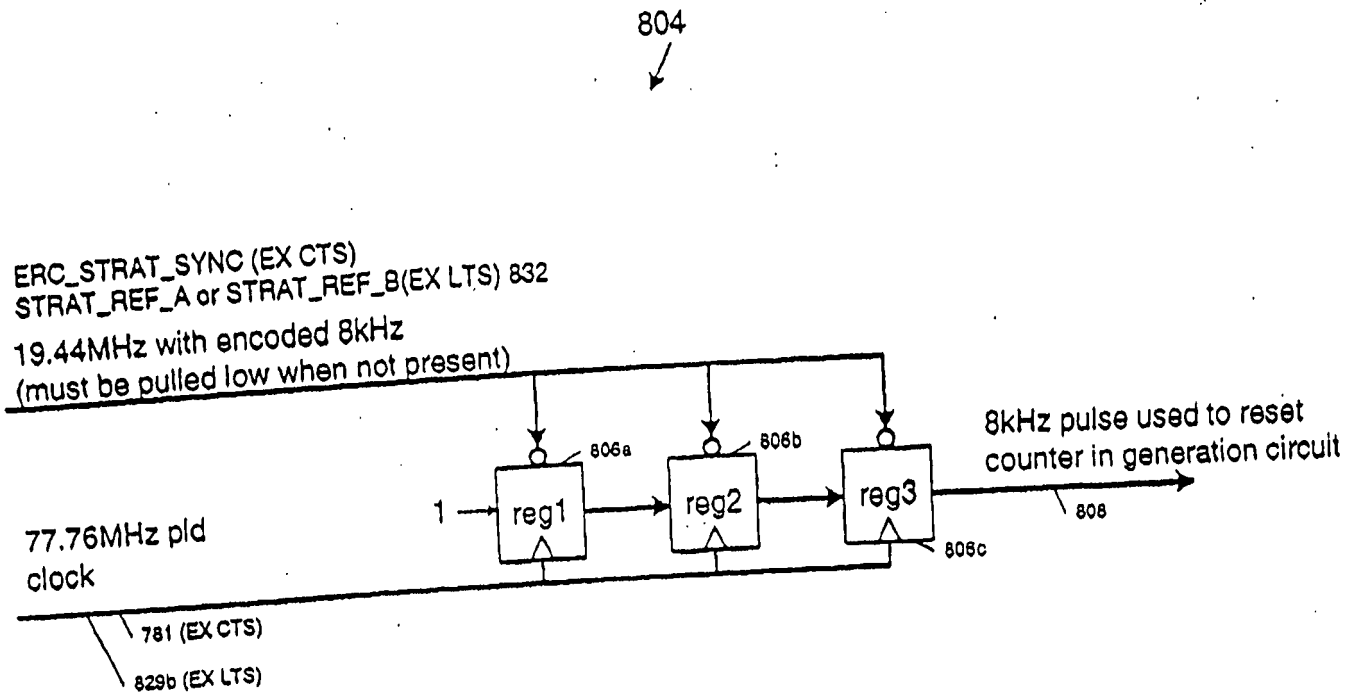


Fig. 52



Extractor

FIG. 53

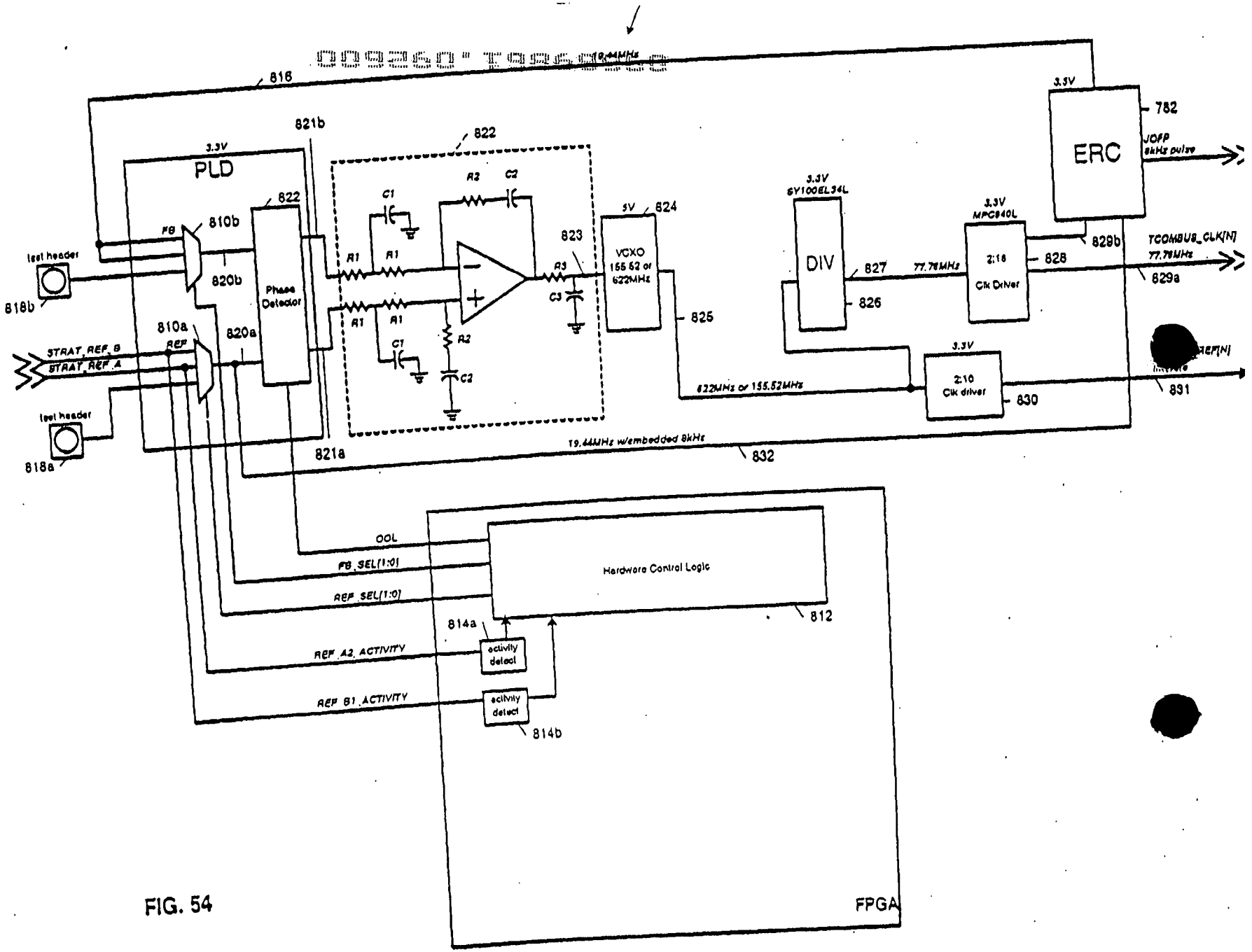

816
PLD
3.3V
821b
822
FB
810b
820b
Phase Detector
822
C1
R2
C2
R1
R3
C3
VCXO
155.52 or 622MHz
5V
824
825
DIV
827
826
77.76MHz
2:16
Clk Driver
828
829b
829a
ERC
782
JOFP
8kHz pulse
TCOMBUS_CLK[N]
77.76MHz
3.3V
SY100EL34L
MPC840L
test header
818b
818a
STRAT_REF_B
STRAT_REF_A
810a
REF
820a
821a
622MHz or 155.52MHz
2:10
Clk driver
830
831
19.44MHz w/embedded 8kHz
832
OOL
FB_SEL[1:0]
REF_SEL[1:0]
Hardware Control Logic
812
814a
REF_A2_ACTIVITY
activity detect
REF_B1_ACTIVITY
814b
FPGA

FIG. 54

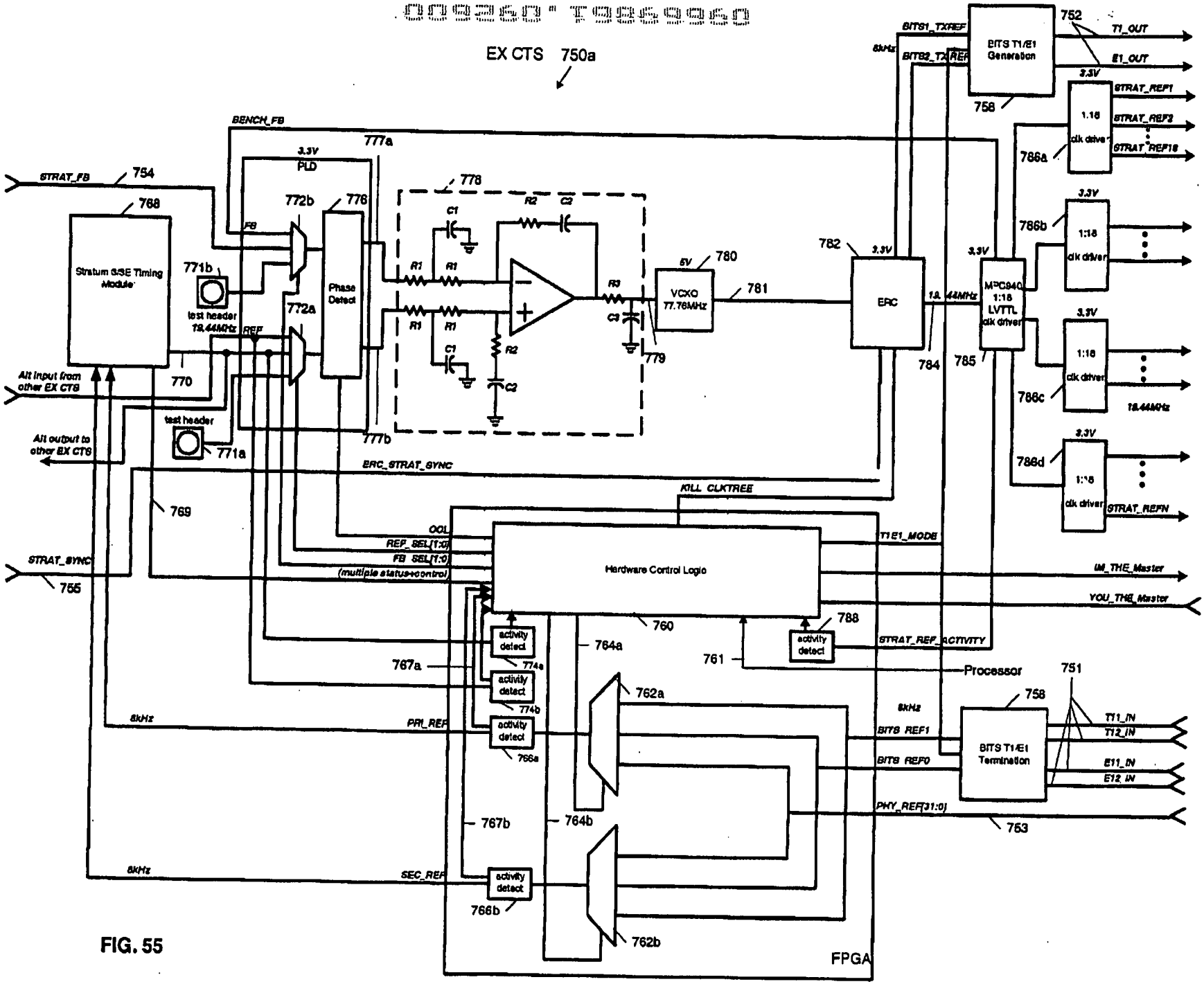

EX CTS 750a
BENCH_FB
STRAT_FB
754
768
Stratum 3/3E Timing Module
3.3V PLD
777a
772b
776
FB
771b
test header
19.44MHz REF
772a
Phase Detect
778
C1
R2
C2
R1
R3
C3
779
VCXO 77.76MHz
5V
780
781
782
3.3V
ERC
19.44MHz
784
785
MPC940 1:18 LVTTL clk driver
786a
786b
786c
786d
1:18 clk driver
18.44MHz
STRAT_REF1
STRAT_REF2
STRAT_REF16
STRAT_REFN
752
BITS T1/E1 Generation
758
T1_OUT
E1_OUT
BITS1_TXREF
BITS2_TXREF
8kHz
Alt input from other EX CTS
770
Alt output to other EX CTS
test header
771a
777b
ERC_STRAT_SYNC
KILL_CLKTREE
769
STRAT_SYNC
755
OOL
REF_SEL[1:0]
FB_SEL[1:0]
(multiple status+control)
Hardware Control Logic
760
T1E1_MODE
IM_THE_Master
YOU_THE_Master
STRAT_REF_ACTIVITY
761
788
activity detect
774a
774b
766a
766b
764a
764b
767a
767b
762a
762b
PRI_REF
SEC_REF
Processor
751
BITS REF1
BITS REF0
BITS T1/E1 Termination
T11_IN
T12_IN
E11_IN
E12_IN
PHY_REF[31:0]
753
FPGA

FIG. 55

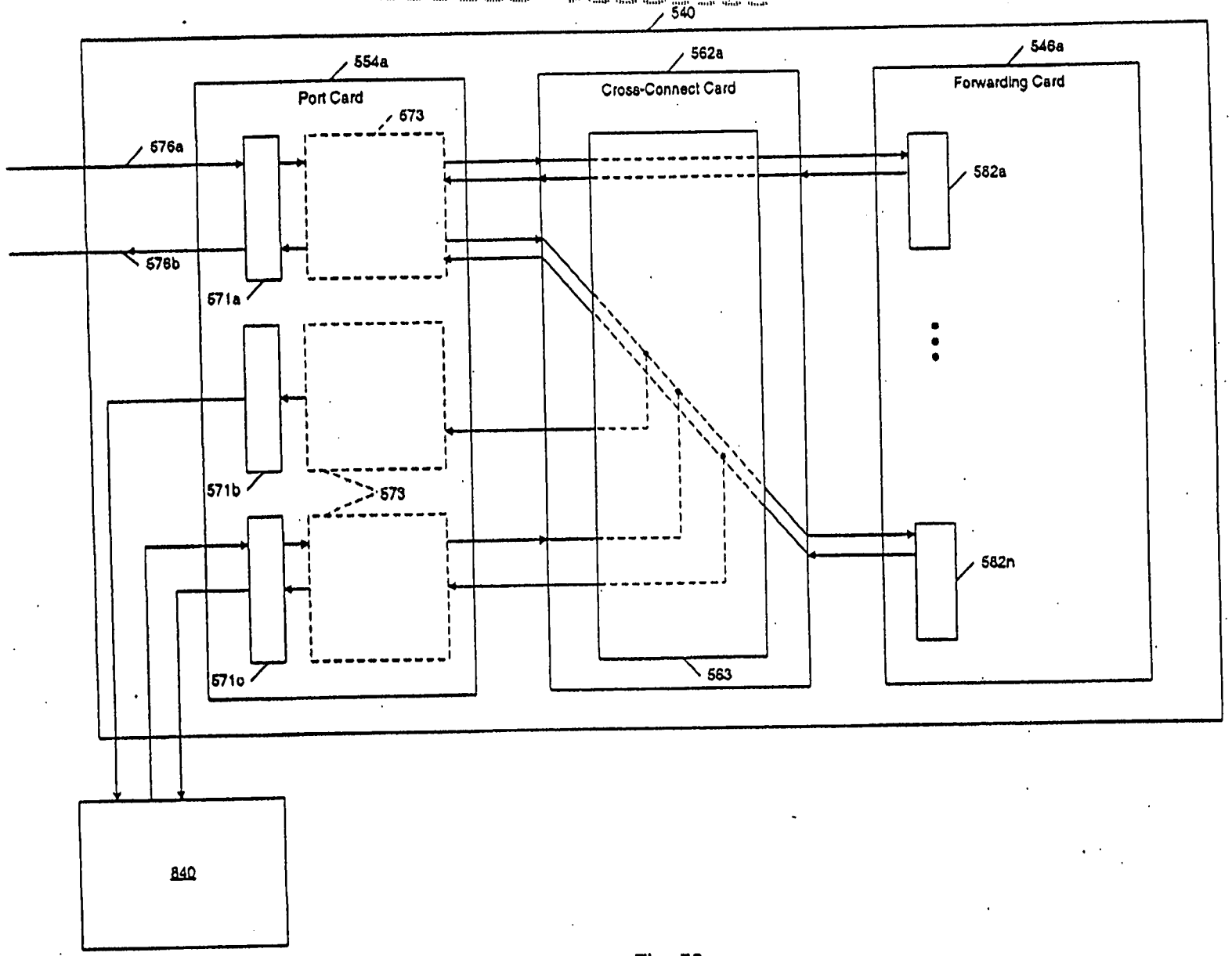

540
554a
Port Card
562a
Cross-Connect Card
546a
Forwarding Card
573
576a
576b
582a
571a
571b
573
582n
571c
563
840

Fig. 56

FIG.57

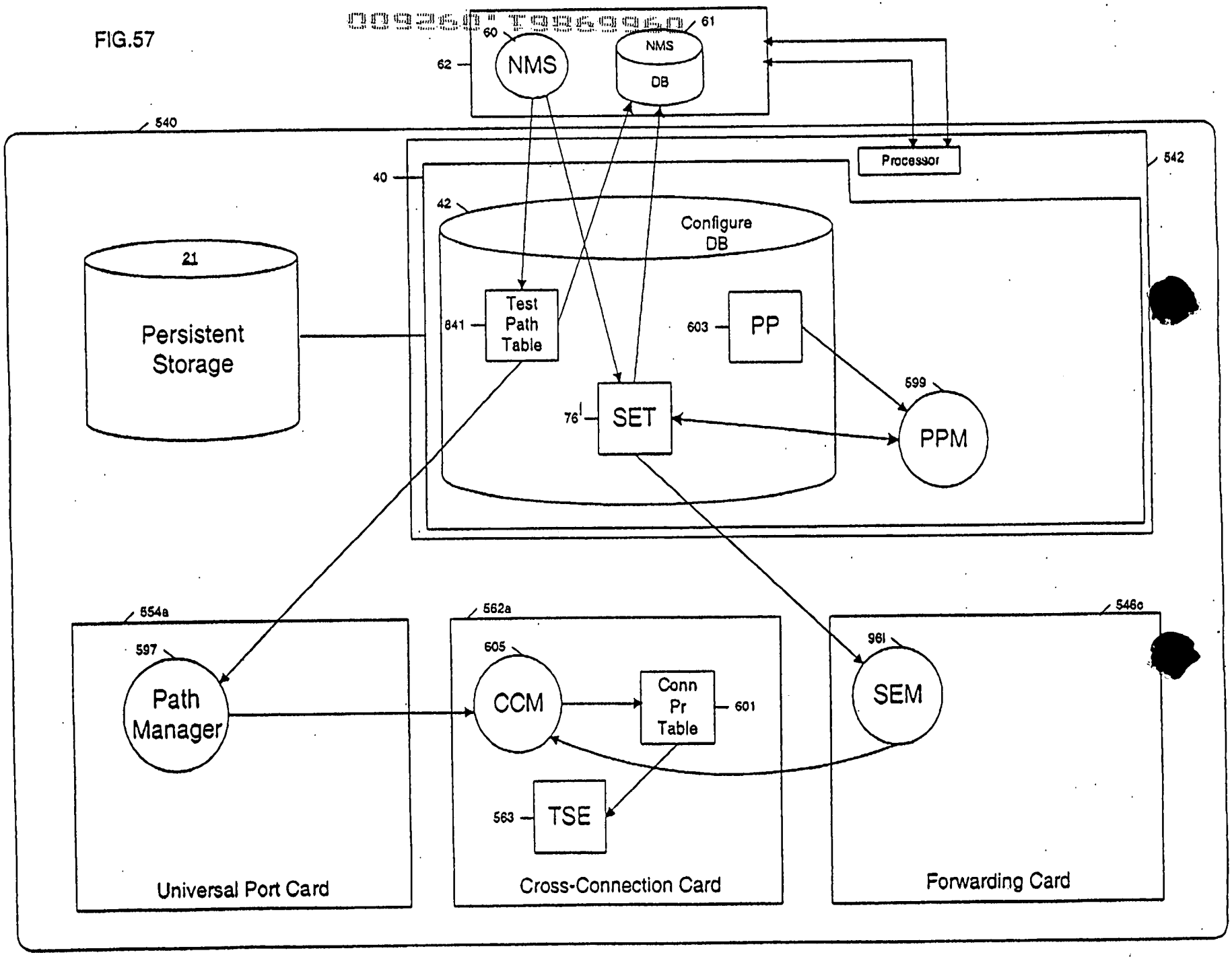

60
NMS
61
NMS
DB
62
540
542
Processor
40
42
Configure
DB
21
Persistent
Storage
Test
Path
Table
841
603
PP
599
76'
SET
PPM
554a
562a
546c
597
Path
Manager
605
CCM
Conn
Pr
Table
601
961
SEM
563
TSE
Universal Port Card
Cross-Connection Card
Forwarding Card

FIG. 58

Test Path Table 841

	Path LID	UP Port LID	Time Slot	# of Time Slots	Monitor (844)	Enable Port Receiver (845)	...
842	1666	1232	4	3	Ingress	No	
843	1666	1233	4	3	Egress	No	
844	1666	1233	4	3	Ingress	Yes	
	⋮	⋮	⋮	⋮			⋮

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